

THE IRON AGE

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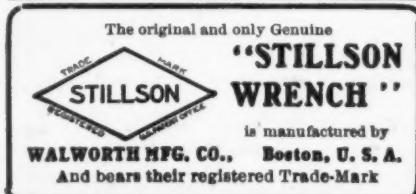
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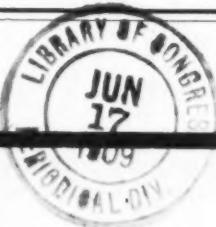
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THE IRON AGE

New York, Thursday, June 17, 1909.

The Powell High Speed Accelerating Cut Planer.

The 24-in. planer illustrated in Figs. 1 and 2 is the first size of a line which the Powell Tool Company, Worcester, Mass., will place on the market. It is a new type, in that, among other characteristic features, it is equipped with a mechanism by means of which the cutting tool is started into the work at a moderate speed, which is then accelerated to a predetermined high speed, two or three times as great as that of starting the cut, which continues until the tool is almost at the end of

den release of pressure on the tool at the end of the cut is destructive has been demonstrated repeatedly in tests of high speed steels. Another benefit of the accelerating drive is that the maximum power required is made more nearly the same as the average, because it is at the reversals of the platen that the greatest amount of power is required. In the new planer, if a motor is employed for the drive, its size will depend on the power required to run at high speed after acceleration is obtained, rather than the power required to change the direction of motion of the parts.

In a test of the planer on a piece of 0.4 per cent. carbon steel 5 ft. long, with $\frac{1}{8}$ -in. feed and $\frac{1}{4}$ -in. cut, it re-

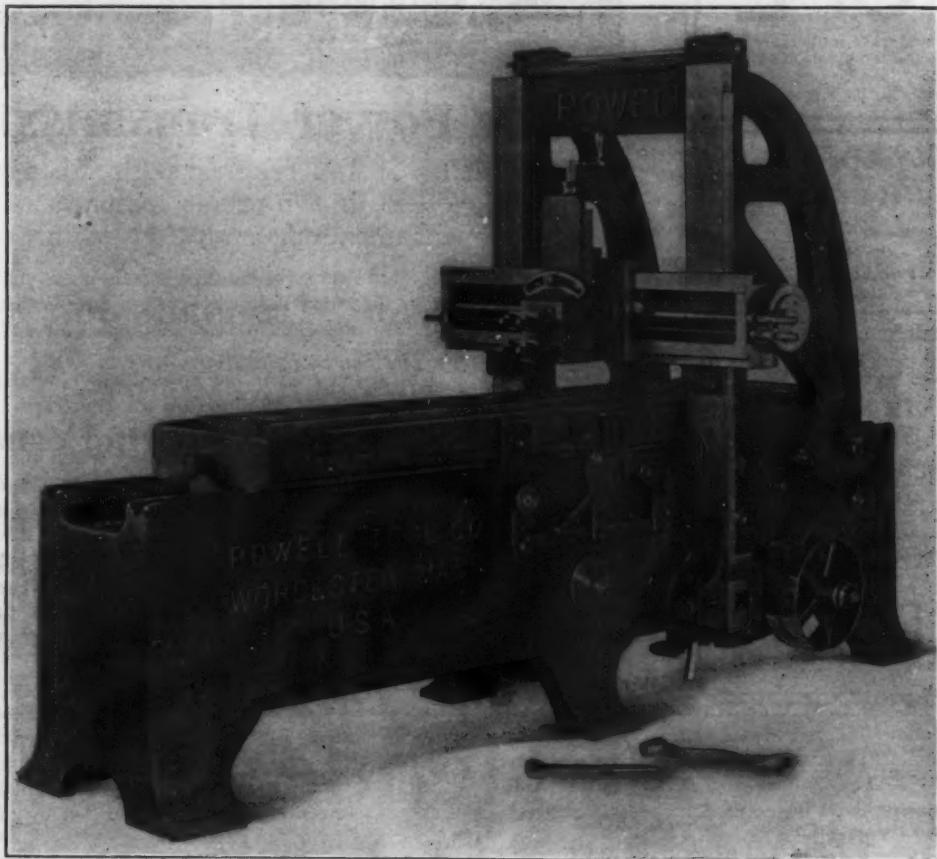


Fig. 1.—The 24-In. High Speed Forge Planer with Accelerating Cutting Speed, Built by the Powell Tool Company, Worcester, Mass.

the work when the slower speed is resumed. The points where accelerating and retarding take place are determined by the location of the table dogs which operate the belt shifting mechanism. The dog which controls the accelerating device has a latch which may be thrown down by the operator, converting the planer into the common type so far as speeds are concerned. The high speed is for roughing out, the low for finishing cuts.

The designer and patentee of the machine, A. M. Powell, gives as the reason for this departure in planer operation the very different fundamental action of a planing machine as compared with an engine lathe, drill or other similar tools. In the latter the cutting is continuous, while in the planer there is the shock or blow on the tool at the beginning of each stroke when it comes into contact with the work. If the speed is high and the blow correspondingly great there is a tendency to break off the cutting edge, necessitating the frequent grinding of the tool. Therefore, it is argued, the cutting speed of the planer at the beginning and end of the stroke should be reduced to relieve the tool of excessive strain at the instants of entering and leaving the work. That the sud-

quired 12 sec. to go through the cut and reverse, using the machine without the accelerating device. With the latter mechanism the same work was done in 7 sec., a gain of over 40 per cent. The greater efficiency claimed is on long continuous work. Tight and loose pulleys are provided on the countershaft to permit of two different sets of high and low speeds, for planing cast iron and steel. Another test was referred to in last week's issue in connection with an exhibit of high speed steels made at the Gould & Eberhardt works in Newark, N. J. Demonstrations were made by Wheelock, Lovejoy & Co. of Firth-Sterling Blue Chip steel tools as used in various high production machine tools, among them a 24-in. Powell accelerating-cut planer. With a Blue Chip tool cast iron was planed at a cutting speed of 130 to 140 ft. per minute, cutting to a depth of $\frac{1}{8}$ in. with a $\frac{1}{8}$ to $\frac{1}{4}$ in. feed and for a length of 5 ft.

The method of accelerating the cutting speed—that is, of increasing the speed without shock—is by a purely mechanical device of simple construction, driven by one belt for the cutting pulley and one for the return. The belt shifting dogs on the edge of the platen are adjusted

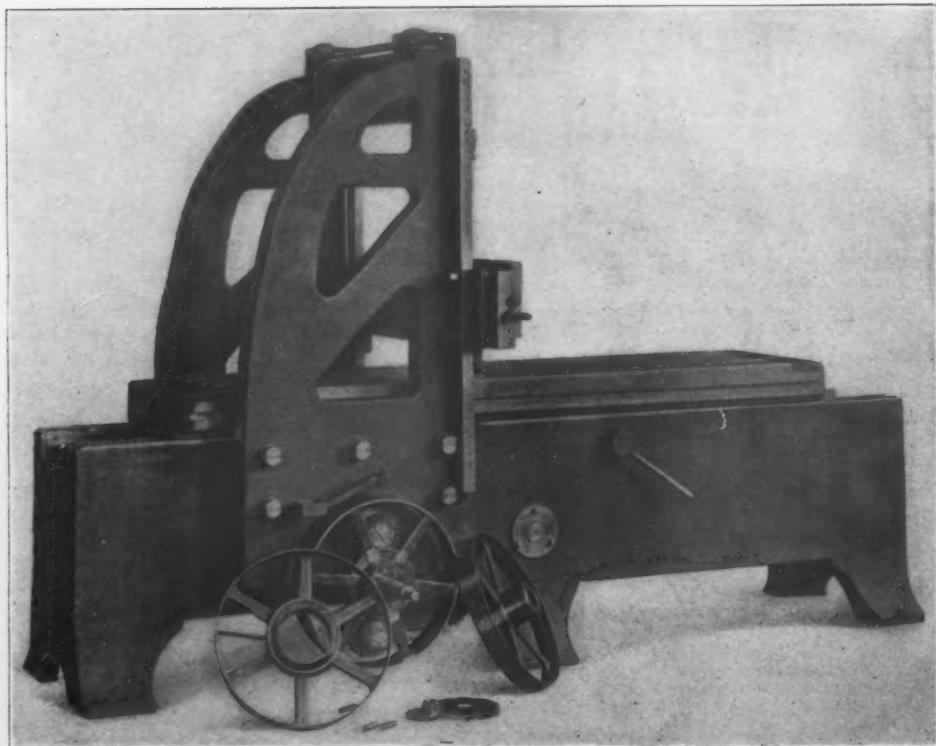


Fig. 2.—View of the Opposite Side, Showing the Differential Gearing and Ratchet Pulley.

to the cut as in the ordinary planing machine. The cutting belt is first shifted from the loose pulley to the first or initial speed pulley, which runs loose in one direction and tight in the other. This pulley acts as the regular driving pulley, except when the accelerating speed is in operation, which is effected by the striking of the accelerating speed dog against its tappet. This by means of its belt shifting cam throws the belt over from the initial to the accelerating pulley. Both pulleys have the same rim velocity, being driven by the same belt, but the accelerating pulley is loose on the driving shaft and has a gear on its hub engaging with differential gearing attached to the bed plate, and these gears in turn engage a gear keyed to the driving shaft. The speed of the driving shaft under acceleration depends upon the ratio of this gearing. In the machine illustrated it is three to one, or 120 to 40 ft. per minute, but very probably a ratio of nearer two to one will give sufficient high speed capacity for ordinary commercial usage. As the driving shaft increases in speed at the moment of acceleration it draws away from the initial pulley, which becomes loose, in an accurately increasing ratio until the full speed is reached.

This rate of travel continues to a point just before the end of the cut, where the speed is automatically returned to the initial rate, thus avoiding shock or strain on working parts.

The speed controlling mechanism is shown in greater detail in Fig. 3. Mounted on the shaft are the reversing pulley *b* and its idle pulley *a*, and the three pulleys *c*, *d* and *e* of the driving mechanism. When the planer is at rest the two belts are on the pulleys *a* and *c*, both of which are loose. When the table reverses for the return the backing belt moves from pulley *a* to *b*, the cutting belt remaining on the pulley *c*. At the end of the return stroke the table reverses to the cut by shifting the return belt from *b* to *a* and the cutting belt from pulley *c* to *d*, the latter being a friction or ratchet pulley running tight in one direction and loose in the other.

The table is now running into the cut at the first or initial speed, which is the same as that ordinarily used in planer practice. Just after the tool has begun to cut the cutting belt is shifted from pulley *d* to *e* by a special dog working through the belt shifting mechanism, which is of the standard flat cam type operated by means of dog

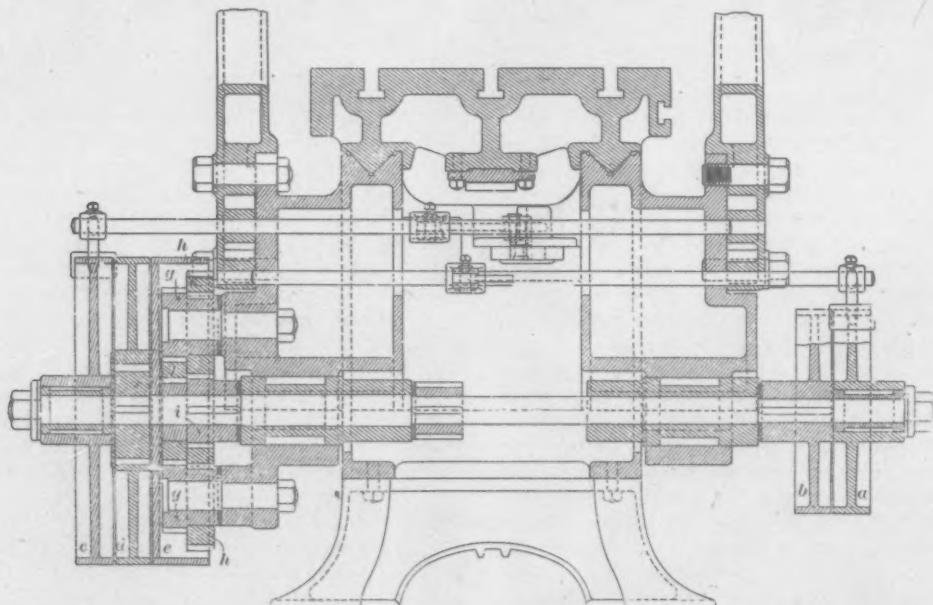


Fig. 3.—Section Through the Driving Shaft of the Powell High Speed Accelerating Cut Planer.

and tumbler. This special or third dog has a latch which may be lifted out of contact with the accelerating shifting mechanism, thus converting the planer into the common type of machine.

The pulley *e* is loose on the driving shaft and has a pinion, *f*, keyed to its hub, engaging the differential gears *g*, which with the gears *h* revolve on fixed studs attached to the bed plate. The gears *h* in turn engage the pinion *i*, which is keyed to the driving shaft. The speed of revolution of the pinion *i* is dependable upon the ratio of the differential gearing, the effect being to increase the speed of the driving shaft.

As the rim velocity of the pulleys *d* and *e* is the same, but the speed of the driving shaft driven through the differential gears by the pulley *e* is greater than its speed as driven by the pulley *d*, the ratchet hub turns freely in the pulley *d* and this pulley becomes for the time being loose on its hub. The cutting belt remains on the pulley *e* until just before the end of the cutting stroke, when the belt is shifted back from *e* to *d* by the shifting mechanism and the speed drops to normal, at which it continues until the end of the stroke, obviating shock or jar caused by the tool breaking out of the work at high speed. This retarding also assists in enabling the table to return with greater ease. As the planer is now ready

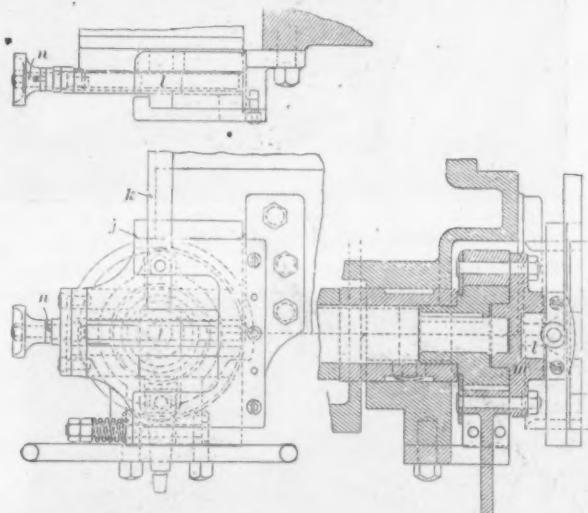


Fig. 4.—Detail of the Releasing Friction for the Feed Mechanism.

to reverse, the reversing dog continues until it strikes the belt shifting rocker in the usual way and the cutting belt is shifted to the pulley *c*, and the return belt to the pulley *b*.

Another new feature in planer design is the friction feed mechanism, which operates in the same general manner as the usual arrangement of a crank shaper; by means of the sliding head *j*, Fig. 4, to which is attached the feed rack, having a vertical reciprocating movement directly without connecting rods. It is operated by the adjustable roll *l* moving in the slot in the face of the friction plate *m*. The friction is the common releasing type; the length of travel of the feed rack and consequently the amount of feed is determined by the adjusting screw *n* in the sliding head, the amount varying as the roll is moved to or from the center. The amount of feed is shown by a graduated scale on the housing and a pointer attached to the rack.

All of the shaft bearings and loose pulleys of the planer are self-oiling. Safety locking devices for the belt shifters hold the belts positively on the loose pulleys when the planer is idle, avoiding danger of accident while placing or removing work from the platen. The belt shifter movement may be controlled from either side of the planer. The planer can be made in all lengths up to 25 ft. The one illustrated planes 25 in. wide, 25 in. high and 5 ft. long, and weighs about 6000 lb.

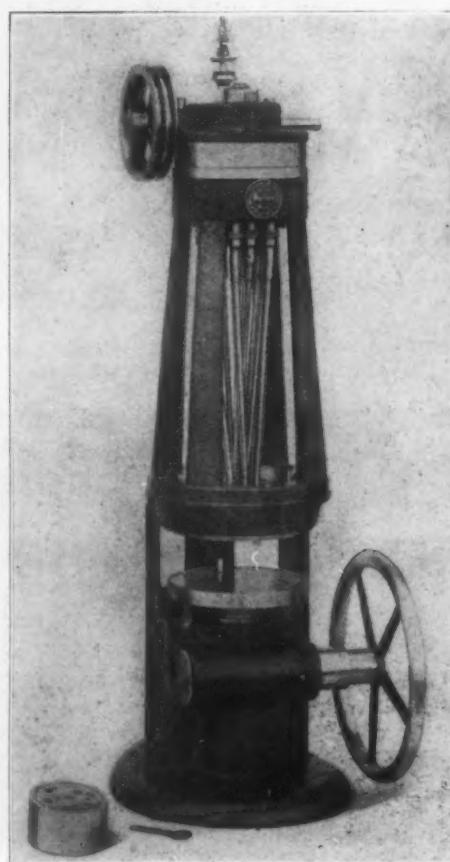
Dr. W. H. Tolman contributed a report on "Profit Sharing and Mutuality" at the recent convention of the National Electric Light Association at Atlantic City. He

reviews the experience in Germany, France, the United Kingdom, Belgium, Holland, Switzerland and the United States.

A Waltham Multi-Spindle Drilling Machine.

The multi-spindle drilling machine made by the Waltham Machine Works, Waltham, Mass., is designed for extremely close spacing, a special ball and pin joint permitting of less than 0.2 in. between centers of holes drilled. The connections between the driving and drill spindles are two to three times as long as is usual in machines of this class, thus making the angle very slight and the machine easy running, and reducing the wear on the joints.

The drilling spindles are evenly spaced around a central gear, which is driven from the countershaft. The gears are inclosed and are accurately cut, so that they will run at high speeds with practically no noise.



A New Multi-Spindle Drilling Machine Made by the Waltham Machine Works, Waltham, Mass.

The drill spindles are held in interchangeable cast iron blocks, accurately bored to the desired location of holes. The holes may be drilled from either side of the work, as the blocks can be reversed, or, in the case of such work as clock plates, the upper and lower may be drilled from the inner face. The joints and spindles are of hardened steel and the latter have bronze bearings, easily replaceable. With the use of short drills holes may be accurately drilled without the use of a jig, and the machine may be used for reaming and countersinking holes already drilled or punched, without a jig; but provision is made for the use of a jig if desired.

The table carrying the work is operated either by a hand wheel or by a lever connected to a rack and pinion, and an adjustable stop is provided to regulate the depth in drilling. There is a screw adjustment for the vertical position of each spindle. The machine is built in two sizes, the larger with any number of spindles up to 14 and drilling any arrangement of holes within a 6-in. circle, while the smaller has any number of spindles up to eight and drills within a 3½-in. circle. The larger machine weighs 240 lb. and the smaller 50 lb.

New Molding Machines.

The Murphy Rollover Machine.

A new type of rollover machine has been developed by James A. Murphy, foundry superintendent of the Hooven-Owens-Rentschler Company, Hamilton, Ohio. It embodies several new and interesting features. In Fig. 1 the machine is shown with a gate of patterns attached ready to receive the drag. The rollover table is carried on trunnions at the ends and these are supported by two iron yokes, each resting on two pistons. The rollover device is located at the right of the machine and is not very clearly seen in Fig. 1, but is better shown in Fig. 3. Fig. 2 represents the machine with the drag flask in



Fig. 1.—The Murphy Rollover Molding Machine with Patterns Attached, Ready to Receive the Drag.

easily. The mold is received on a small carriage which can be run forward from under the machine to facilitate its removal. In the particular patterns shown in the illustration the cope is a small flat back which is rammed up by hand on a plate or buck, as shown at the right in Fig. 3.

The Murphy Jarring Machine.

Mr. Murphy has also invented and constructed a new type of jarring molding machine which he has named the Murphy Bouncer. Its general appearance when removed from the pit for photographing is shown in Fig. 4. It will be noticed that it differs radically from other machines. The principal difference is that in place of being



Fig. 2.—Drag Flask Ready for Rolling Over.



Fig. 3.—The Flask Supported on Blocks After Rolling Over.

place rammed up and the bottom board clamped on ready for rolling over. After the flask has been rolled over it is supported upon blocks, as in Fig. 3. This is accomplished by raising the rollover table slightly, inserting the blocks, and then bringing the bottom board to rest upon these supports. For an adjusting device, four pads made of sheepskin filled with curled hair are used, and these have been found to work very well.

One of the most interesting features is the operation of the pattern drawing device, first by hand and then by compressed air. When drawing the patterns the lever shown at the left of the machine in Figs. 1 and 2 is lifted slightly. This starts the pattern and at the same time opens an air valve, admitting air through the stationary plungers into cylinders formed in the yokes on the ends of the machine. This air completes the lift and makes it possible to draw a heavy pattern quite

attached to the piston the table has been attached to the cylinder, the piston being stationary and connected to the base, while the cylinder is arranged to move up and down upon it and to carry the table with it. This construction permits the casting of heavy ribs on the outside of the cylinder walls to support the table.

The impact of the falling table is taken on a series of steel pins shown about the base of the machine. The air for operating comes in from an opening on one side, and is admitted by a cutoff valve which is controlled by an adjustable tappet on the side of the cylinder. The valve proper rests on springs, and when air is turned on to the machine the table immediately starts up. If the tappet is adjusted to its lowest point the cutoff valve is considerably below port entry for the air when the stroke begins, and hence air will be admitted for a considerable portion of the stroke. As the tappet is run back, the springs

throw the valve higher and higher, thus causing it to cut off earlier. This permits of using the air expansively in the cylinder, a feature peculiar to this machine. Naturally, when very heavy work is to be jarred it is necessary to use full pressure air for the greater portion of the stroke. When light work is being used great economy can be effected by cutting off the air early in the stroke.

The exhaust port is uncovered when the piston reaches

used, these being mounted on casters and run upon the jarring table after the flask has been filled with sand. The machine is then removed and the pattern drawn in the ordinary way. In this way the jarring machine may be used for ramming the molds from two or more Pridmore machines.

Fig. 6 shows the machine with a Pridmore molding machine upon the side table or plate after ramming. On the day the views were taken there were 53 molds on the floor shortly after 3 o'clock in the afternoon for castings ranging from 50 lb. to 2000 lb. This work was done by six holders, five apprentices and two laborers. All of the drags were rammed on the Murphy Bouncer, while the copes were rammed by hand. In cases where flat backed copes are required these could also be rammed on the machine, but none of the molds above referred to were of this type, and some of them were quite complicated, requiring drawbacks in the cope or having the patterns so arranged that various parts had to be picked in during the pattern drawing operation. Mr. Murphy has not yet been able to work the machine to its capacity on account of the fact that he has not had work enough available on the floor.

The machine crew do no pouring, and by working during pouring time they have on the floor a drag ready for each one of the regular molders to begin work on in the morning, so that the molders work a full day molding copies. One of the jib cranes serves the jarring machine

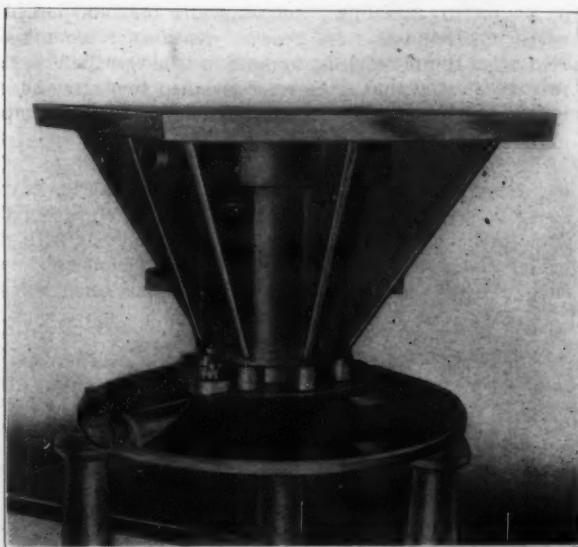


Fig. 4.—The Murphy Jarring Molding Machine.

its highest point, this port being through the walls of the cylinder and practically continuous about the cylinder. The exhaust pipe of the machine is connected by a hose to the stationary exhaust pipe in the pit. The arrangement as shown keeps all of the working parts free from sand or dirt. On the bottom of the base plate Mr. Murphy arranges a segment of a sphere, as shown in Fig. 5, so as to distribute the thrust equally to the foundation. The machine is mounted on concrete.

As installed in the plant of the Hooven-Owens-Rentschler Company, the machine is arranged with a flat iron

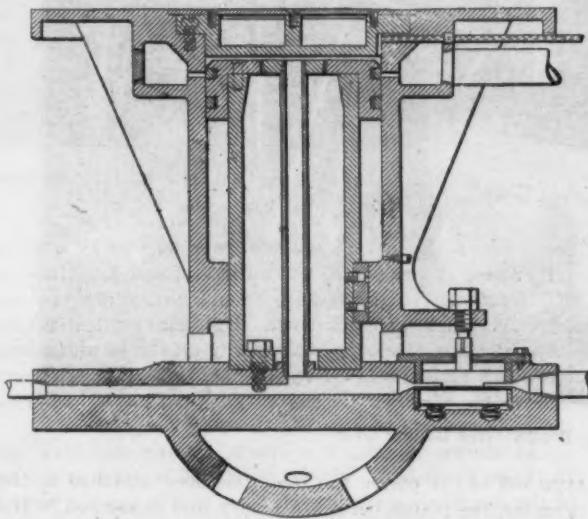


Fig. 5.—Sectional View of Jarring Machine.

table on each side, as in Fig. 6. The workman places on one of these tables a bottom board pattern and drag and shovels in the sand. As soon as the machine is idle the drag is slid along the iron table to the machine. It is jarred and immediately after is slid off to the table, where the parts are assembled. In the mean time the men on the opposite side of the machine have prepared a drag for ramming. In this way the crew keeps the machine fairly busy. The patterns are ordinarily left in the drags until they are carried to the floor where the copies are rammed by hand.

Sometimes, however, Pridmore molding machines are

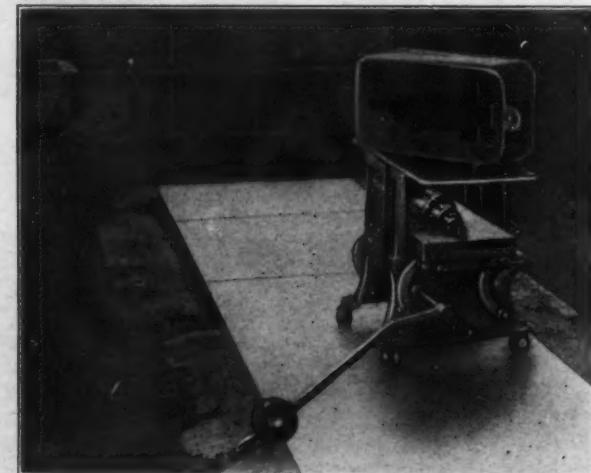


Fig. 6.—Jarring Machine Used in Connection with Pridmore Molding Machine.

floor; the traveling crane carries the drag from the machine to the floor and later in the day takes care of the pouring, shaking out, &c. The stroke of this machine can be varied to suit conditions, but as constructed at the plant described it is $\frac{3}{4}$ in.

The nonmagnetic yacht Carnegie, in the construction of which practically no iron or steel was used, was launched at Brooklyn, N. Y., June 12. The only metal in the entire ship that is not nonmagnetic is that of the pistons, the gas producer and the range grates. The Carnegie goes in a few weeks on its first voyage with the object of obtaining correct records of magnetic variations. It will be manned by a picked crew selected by the Carnegie Institution, Washington, D. C., for which the vessel was built.

Among the papers to be read at the forthcoming convention of the American Institute of Electrical Engineers at Frontenac, N. Y., on June 28 will be that of H. C. Specht of the Westinghouse Electric & Mfg. Company on the "Function of Flywheels in Connection with Electrically Operated Rolling Mills." The paper has been printed in the June issue of the *Proceedings*.

The Great Northern Power Company, Duluth, Minn., has been buying electric motors recently and is largely increasing its commercial load. The company is making an active campaign for business on the iron ranges.

Special Newton Cold Saw Cutting-Off Machines.

Recently Furnished the Bethlehem Steel Company.

A special equipment of cold saw cutting off machines adapted to the Bethlehem special shapes was recently furnished the Bethlehem Steel Company by the Newton Machine Tool Works, Philadelphia, Pa. The accompanying illustrations show the machines which form two units, each unit comprising three machines and each set of three mounted on a long bed. The entire equipment weighs approximately 450,000 lb., and each of the long beds is 83 ft. long over all and 9 ft. wide over all and has a depth of 16 in.

Fig. 1 shows the installation. These machines are of a spindle driven type. The spindle is 10 in. diameter and has a bearing at each end 16½ in. long. The drive is

As shown in Fig. 3, the motor shaft carries two pulleys engaged by two Johnson friction clutches arranged to transmit motion to the pulley E on the main driving shaft through a 6-in. belt, and to the pulley F on the end of the feed screw through a 5-in. belt for the quick return to the saddle. The saw blade is of the inserted tooth type and is attached to the spindle by broad face collars and six bolts which serve as drivers.

It will be seen from the foregoing that the machine proper has the standard Newton features, with the exception that the machine is much larger than any before furnished. This machine was designed to cover the entire range necessary for the Bethlehem special shapes and to reduce to the lowest possible amount the time of machining. Special provision has been made for holding these shapes before the saw blade. In Fig. 2 will be seen the shaft H, which is provided for elevating the parallel block I to bring the shape to alignment with the center of the saw blade. The middle machine as shown in Fig. 1 is fixed to the main bed, and the work table is

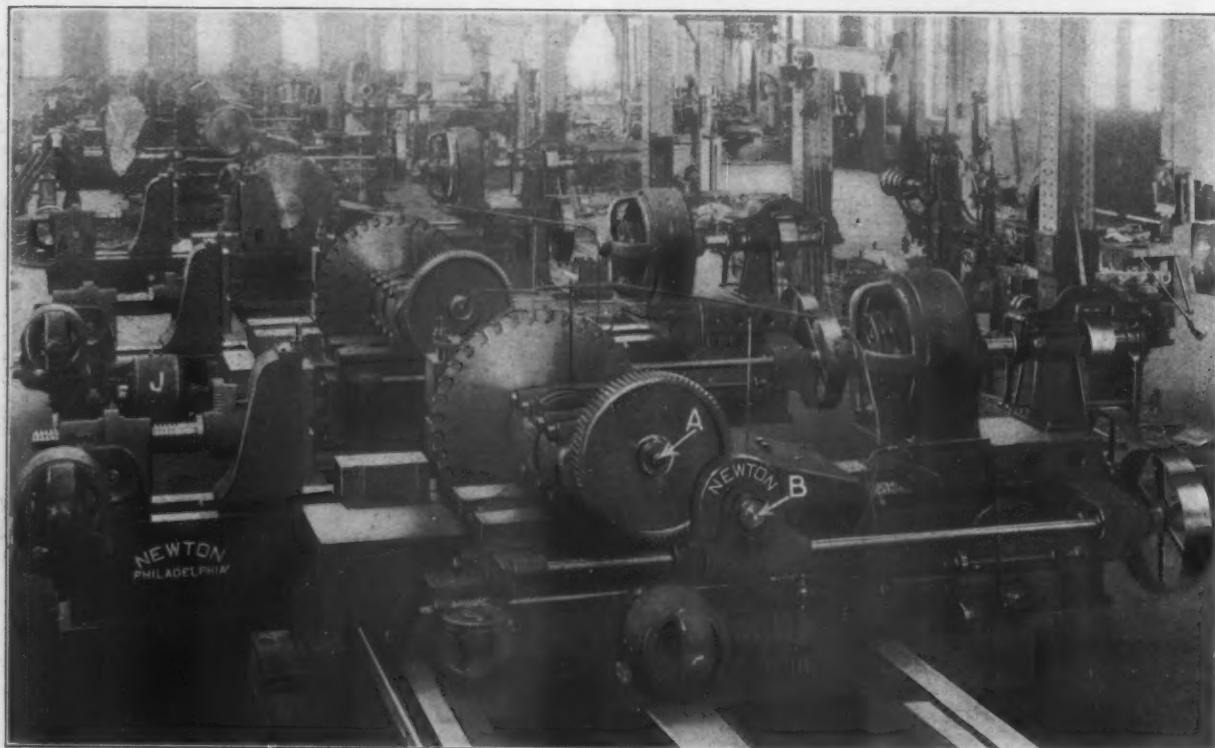


Fig. 1.—An Installation of Cold Saw Cutting-off Machines, Consisting of Two Units of Three Machines Each, Furnished the Bethlehem Steel Company by the Newton Machine Tool Works.

through a steep lead spur gear mounted between the two bearings of the spindle and meshing with a pinion mounted on the inner side of the plate gear shaft A, Fig. 1, which in turn engages with the spur gear mounted on the worm wheel shaft B, giving a ratio to the drive of 114 to 1. The worm wheel is a bronze ring mounted on a cast steel center. The teeth are of steep pitch and triple lead. The worm is of hardened steel and is arranged with roller bearings to take the thrust.

The saw carriage has a bearing on the bed 33 in. wide, and is provided with underlock bearings cast solid. The adjustments are made by means of taper shoes. A continuous friction feed is provided which is variable in rate from ½ to 2 in. per minute. Control of the feed variation is by means of the segmental lever C, shown in Fig. 2, which controls the friction roller on the feed plate D, as may be seen in the rear view of one machine given in Fig. 3. This roller shaft also carries a pulley which transmits motion to a No. 3 Brown & Sharpe geared pump, which is furnished complete with piping and attachments for lubrication. The lever C is arranged with a clamping lever to hold the feed variation roller in any position. Each machine is independently driven by a 25-hp. motor running at from 650 to 1300 rev. per min., giving a peripheral speed to the saw blade of from 33 to 66 ft. per minute and a quick return to the saddle of from 4½ to 9 ft. per minute.

arranged with two adjustable parallel blocks, one on either side of the blade, while the two end machines are adjustable in their distance from the middle one and have one parallel block each. Uniform vertical adjustment of these blocks is obtained by means of an internal elevating screw rotated by the shaft H through worm and worm wheels; the shaft H is in turn driven from the motor shown at J in Fig. 1.

As shown in Fig. 2 a special power clamping vise has been furnished. The inner jaw K is fixed to the bed of the machine and is fitted with a saddle having vertical hand adjustment, to which are attached auxiliary plates having a contour corresponding to the shape to be cut. The outer jaw L likewise has a provision for carrying the shaped parallel pieces, and in addition has an in-and-out adjustment operated through the screw and nut shown at M. Power is transmitted to this mechanism from a 5-hp. motor on each machine running at 1180 rev. per min. The motors are wired in series for simultaneous operation of the clamping vises. Each motor is provided with an overload circuit breaker. The motors give a movement to the jaws L of 53 in. per minute. The bed of the machine is arranged with three bearings on which the individual machines are fitted, to be held securely in any position by bolts engaging the parallel slots in the bed. The adjustment of each end machine on the bed is effected by a 7½-hp. motor running

at a speed of 800 rev. per min., shown at O in Fig. 3. This motor drives the two rack pinions on each machine engaging with the racks on the bed, through intermediate gearing and two sets of worm and worm wheels. All of the motors are of General Electric make.

The left hand machine can be adjusted from a minimum distance of 74 in. to a maximum distance of 36½ ft. from the center of its saw blade to the center of the saw blade on the middle machine, and the right hand machine can be adjusted from a minimum distance of 94

a tongue attached to the arm of an eccentric bushing shaft. The rotation of the blade lifts a finger, which in turn causes rotation of the eccentric bushing, which is attached through a connecting arm to an oscillating arm, to which the emery wheel it fitted, and causing the emery wheel to be forced nearer the center of the saw blade, thus grinding the front rake. The emery wheel is withdrawn to a position for engagement with the next succeeding tooth by the contraction of a spring.

The saddles to which the grinding attachment is fitted has three distinct swiveling points in line with the center

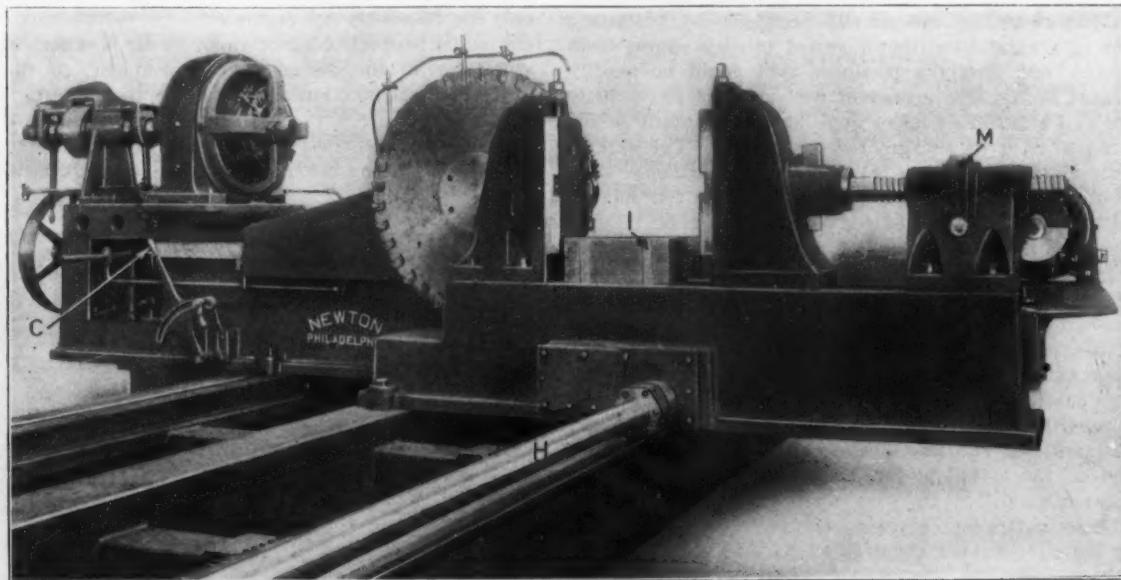


Fig. 2.

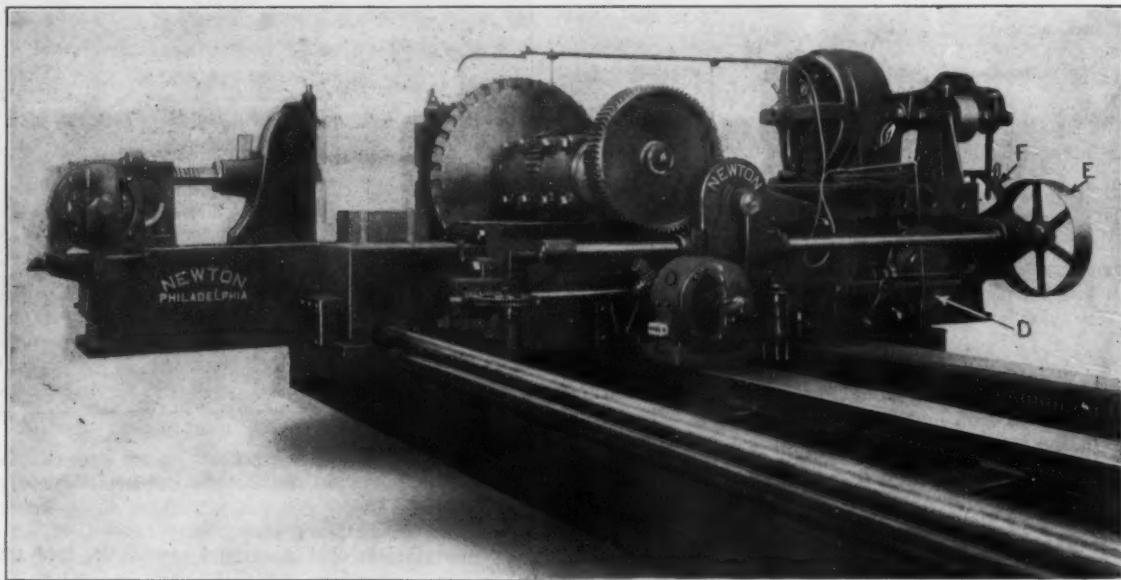


Fig. 3.

Views of Opposite Sides of One of the Newton Special Cold Saw Cutting-off Machines

in. to a maximum distance of 36½ ft. from the center of its saw blade to the center of the saw blade on the middle machine. These adjustments are made by power at the rate of 8½ ft. per minute. While all the important movements are made by power, each machine can be operated by hand independently.

With machines carrying saw blades of 50 in. and larger diameter, a special automatic relief grinding machine is furnished when desired, which is arranged to grind the face and side rake and radial clearance. The machine consists of a substantial base on which is fitted an adjustable saddle carrying a spindle driven through worm and worm wheel by a four-step cone pulley from a motor mounted on the base of the machine. In operation the saw blade is attached to the spindle of the machine and is caused to rotate. The saddle carrying the blade is then adjusted to bring the teeth into engagement with

of the emery wheel, permitting the side and radial rake to be ground, in which case the finger before mentioned is arranged to draw the emery wheel into the side of the teeth, the slot having been previously set at the proper angle of clearance. The original inserted tooth blades were made with alternate oval and round teeth in order to split the chips, thus reducing the amount of power necessary to drive the blade on a given cut, but this has been found unsatisfactory, as absolute accuracy in setting the teeth with the adjusting wedges could not be obtained in a reasonable time. The teeth are now held in place by wedges that have no adjusting screws and are all of uniform shape, i. e., have square faces, and it has been demonstrated that as each tooth does its proportionate share of the work and is ground at an absolutely equal distance from the center of the blade, less power is consumed when taking even heavier cuts.

The Westinghouse Double-Zone Bituminous Gas Producer.*

For a number of years extensive experimental work has been in progress at the Westinghouse Machine Company, East Pittsburgh, Pa., having for its object the development of a satisfactory producer suited to the use of various forms of bituminous fuels. The requirements were a producer capable of continuous operation, producing a gas free from tar, operating at such temperatures as would avoid troublesome clinker formation, producing a gas of normal constituents suited to high engine compression, and finally a producer that could be readily operated by a single attendant with comparatively little labor and skill. This latter qualification evidently necessitated a plant of the greatest simplicity. The experiments on various types covered an exceedingly wide range in producer design and with full sized models from 250 to 750 hp. tested for months at a time. These experiments included many forms of down draft and under feed systems, as well as various types of blowers and tar extractors, finally culminating in the present form of double zone producer, Fig. 1, which has proved suitable for the ordinary bituminous fuels. This experimental work was recently concluded with a full year's continuous testing with various fuels and operating conditions, some tests lasting for a month, day and night, without shutting down. All of the results are based on the actual power developed by brake tests of the gas engine.

These performance tests embraced both good and poor coals from the Pittsburgh District and lignites from northern Colorado, Texas and South America, with a trial also of garbage, crude meadow peat and other waste material. The period of operation ranged from 10 to 24 hr. a day throughout the month, generally at full or overload, also two months' run to determine stand-by losses accurately. It is, therefore, believed that this series of tests constitutes an unusually complete demonstration of the ability of this type to operate continuously and satisfactorily with reasonable grades of bituminous fuels.

Type of Plant.

The general scheme will be observed from Fig. 2, showing a complete plant with all auxiliaries. The producer consists of an upper shell, superimposed upon a lower shell, with a cast iron evaporator between. A hollow air cooled top communicates with the evaporator through a downcomer and an uptake. A third downcomer connects the evaporator with a lower tuyere. The producer is supported from four concrete foundation piers on a cast iron mantle, the lower rim of which dips beneath the level of the water in the ash pit, forming a water seal.

In the normal operation of this producer green fuel is fed through the open top, and during its descent to the offtake zone is completely transformed into coke. During its further descent to the ash line this coke is completely gasified to ash. There are, therefore, two independent fuel beds. In the former tar vapors distilled from the fresh coal are transformed into fixed gas which mixes with the straight coke producer gas generated in the lower zone.

There are also two combustion zones in this producer, one at the extreme top and one at the bottom just above the tuyere. This is brought about by a double supply of vapor laden air. This air supply is drawn in from above. Circulating entirely around the hollow top, it is heated sufficiently to increase its capacity for taking up moisture; it is then passed over the surface of the water in the evaporator. This vaporizer is practically in contact with the hot fuel bed at the center of the producer, where it generates the water vapor necessary for cooling the fuel bed through dissociation. This does away with an external boiler to supply steam to the

producer. Entering the vaporizer at the right in Fig. 2, the heated air divides, emerging at the left, part ascending and part descending. Valves serve to control the relative quantity of blast to the two combustion zones. This relation constitutes practically the only variable in the operation of the plant. It necessarily varies with different kinds of fuels, but for any given fuel it should only be necessary to regulate these valves once. The automatic proportioning of vapor to air is otherwise provided for in the design of the producer, so that the process of gasification is automatic through the entire range of load.

With friable fuels it is important to reduce the velocity of gas as low as possible at the offtake to pre-

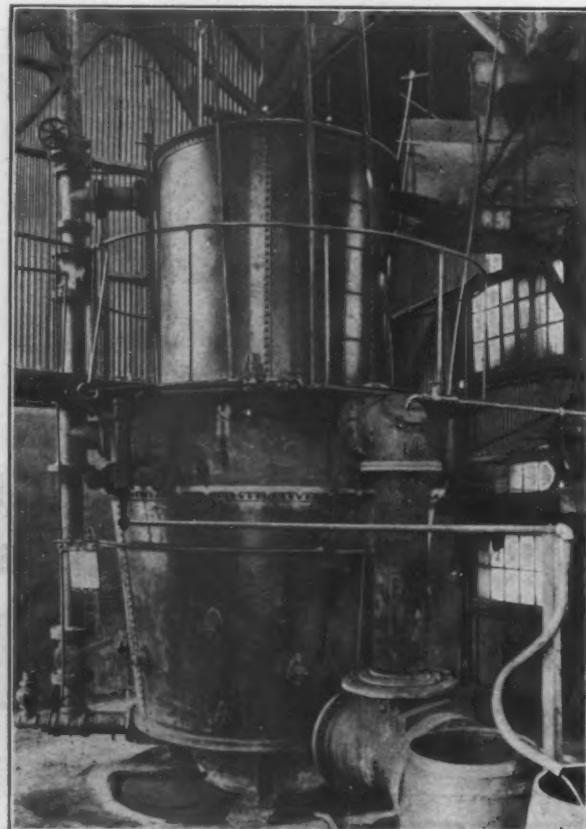


Fig. 1.—Exterior View of a Double-Zone Bituminous Gas Producer Built by the Westinghouse Machine Company, East Pittsburgh, Pa.

vent fire material being carried over. On this account the gas is drawn from the fuel bed at several points, all communicating with the annual header around the middle of the producer. A rotary exhauster provides a positive and uniform suction on the fuel bed. This type seemed to best fulfill requirements and incidentally avoid the uncertainties of operation encountered with the hand regulated blower. Thus the plant becomes virtually a double zone suction type. This exhauster, which is motor driven, operates at a constant speed and delivers gas to the engines always at a constant pressure of a few inches of water. This regulation is accomplished by means of a butterfly valve and a small gasometer, which arrangement by-passes such part of the gas delivered by the blower as is not required by the engines, the remainder circulating through a small mixing header over head. In this manner, the necessity for a variable speed exhauster is avoided.

A gas holder is not employed for the control of gas production as regards quality and quantity or delivery pressure. This reduces the cost of the equipment ma-

* From the report of the Committee on Gas Engines of the National Electric Light Association, presented at the Atlantic City, N. J., convention, June 1, 2, 3 and 4, 1909.

terially and obviates an exceedingly bulky piece of auxiliary apparatus.

Cleaning and Operating.

In the absence of tar the problem of cleaning the gas suitably for engine use resolves itself into the removal of dust and lampblack. This is accomplished by a static cellular type washer, in which the gas streams are spread out in thin layers and constrained to pass over the surface of still water, during which process the matter held in suspension is thrown down. This has been shown to reduce the quantity of foreign matter to about 0.02 grain per cubic foot, which affords a very large margin of safety in operation. In practice a large part of the foreign matter is thrown down in the downcomer by the action of a water spray passing freely to the overflow without entering the static washer. The static washer is practically indestructible and largely self-cleaning, owing to the skimming action at each level. The various sections are readily accessible by lifting off the cover.

Between the producer and the washer is the purge stack, which contains a single seated stack valve in the

access to the fire at these levels, which is an important feature.

The labor requirements are comparatively small, as the fuel bed seldom requires loosening more frequently than once per hour. Ashes are removed about once in 24 hr. Thus, with coal and ash separately handled, one man can operate at least three of these producers without difficulty. Coal may be charged at intervals of 15 min. to 1 hr., according to the load. Owing to the low temperature at which the fuel bed is maintained, the formation of large clinker is prevented, and this trouble was not encountered in any of the tests. Provision is made for flushing out the vaporizer at intervals to prevent the deposit of mud in case foul water is used.

Operating Results.

Reference has been made to various efficiency tests conducted at East Pittsburgh. This producer was put under fire in December, 1907. Several weeks' run on Pittsburgh run-of-mine coal of 13,000 B.t.u. per pound as fired gave an average consumption of 1.2 lb. per brake-horsepower-hour continuous operation. After

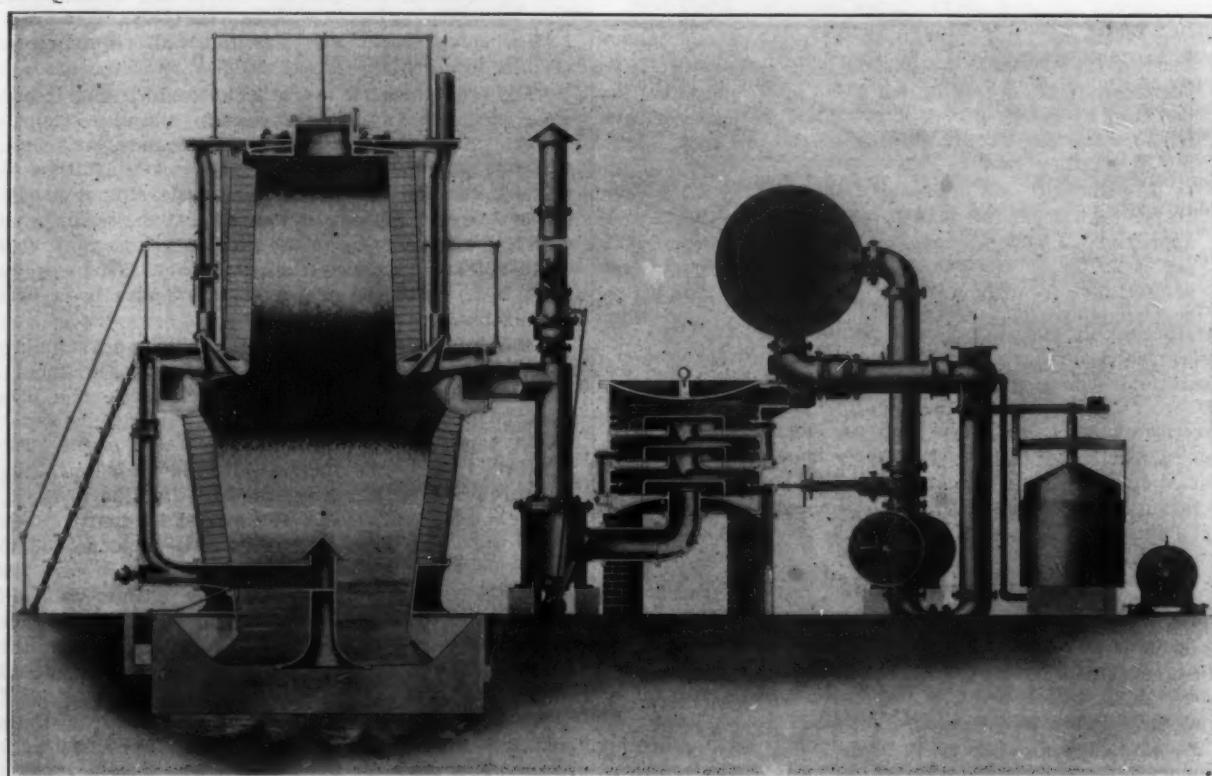


Fig. 2.—Sectional View of the Westinghouse Double-Zone Bituminous Gas Producer and Auxiliary Equipment.

riser leading to the atmosphere and a water seal at the bottom controlled by a plug which is normally left open. When the plant is shut down, the closing of the plug valve floods the water seal, thus shutting off the rest of the plant, and automatically opens the stack valve. This water seal also makes it possible to work on the auxiliary while the producer is at stand-by.

The water seal of the producer proper may be partially drained by a rotating valve. In its up position this valve maintains a water level, as shown in the section, Fig. 2. When turned downward the water is drained 2 in. beneath the lower rim of the mantle ring, consequently breaking the seal and allowing ingress of air at all points. This is effective in the rapid starting of a new fire in which heavy draft is desirable.

In normal operation the pressure at the top fire bed is slightly below atmosphere, so that when the charging cover is opened there is no tendency for smoke or gas to reach the producer room. Thus the most important part of the fuel bed is always available for inspection and can be easily worked down in full view. In addition, poke holes are provided, so located that the sides of both the upper and lower linings may readily be raked by a poker bar and the ash settled down as in the normal operation of a pressure type producer. These also give

some slight improvements which then appeared to be necessary, the plant was again put into commission on March 31, and from then until April 3, 1909, the fire was never drawn. In the intervening year the following tests have been run:

(A) Three 10-hr. tests on South American lignite; (B) 15-day, 24-hr. test on Colorado lignite; (C) 15-day, 24-hr. run on Pittsburgh run-of-mine coal; 15-day, 10-hr. run on Pittsburgh run-of-mine coal; 30-day, 24-hr. run on Pittsburgh run-of-mine coal; (D) 10-day, 10-hr. run on Massachusetts meadow peat; (E) 10-day, 10-hr. run on Texas lignite, and (F) 45-day, 24-hr. run at stand-by Pittsburgh run-of-mine coal.

Average Composition of Fuels.

Runs.	A.	B.	C.	D.	E.	F.
Moisture	20.05	16.63	2.03	38.10	34.09	2.03
Volatile	34.44	33.78	34.98	40.54	30.33	34.98
Fixed carbon	30.85	42.22	56.22	17.86	26.32	56.22
Ash	14.86	7.37	6.77	3.50	9.56	6.77
B.t.u. per lb.						
as fired	8,032.00	8,599.00	13,305.00	6,410.00	6,950.00	13,305.00

Besides the above, there have been numerous short runs under special conditions to determine the various factors entering into successful operation of the producer. The following table shows a summary of the tests on Pittsburgh run-of-mine coal and Colorado lignite:

Test on Bituminous Producer.

	Colorado		
Coal	Pittsburgh Bituminous.	lignite.	
Date of test.....	May 8-23.	Aug. 4-25.	Apr. 16-29.
Hours per day.....	24 hr.	10 hr.	24 hr.
Total hours.....	297.75	514.0	814.0
Engine running hours.....	239.5	168.5	312.75
Hours shut down.....	58.25	345.5	1.25
Pounds coal fired.....	53,935.0	35,647.0	60,939.0
Total running coal.....	...	31,143.0	...
Stand-by coal.....	...	4,504.0	...
Pounds of coal per b.h.p., total.....	1.12	1.24	1.61
Pounds of coal per b.h.p., net.....	...	1.08	...
producer efficiency (per cent.).....	77.0	...	78.5
Combined efficiency, including stand-by (per cent.).....	17.0	15.74	16.6
Excluding stand-by (per cent.).....	...	17.91	...
B.t.u. in coal.....	13,305.0	13,145.0	9,589.0
Ash in coal.....	6.77	10.76	7.37
Fixed carbon in ash.....	...	14.9	...
Percentage of carbon lost.....	...	5.92	...
Average load on producer.....	172.0	170.0	122.0

In general, an economy of about 1.1 lb. per brake-horsepower-hour was obtained on ordinary Pittsburgh coal with 24-hr. operation. With 10-hr. operation, including stand-by of 14 hr., the economy approximates 1.25 lb. per brake-horsepower-hour. For lignite the economy averages 1.6 lb. per brake-horsepower continuous service. The stand-by loss, when under proper draft, is extremely light, averaging for a 175-hp. producer 10 lb. per hour by actual test of a month's duration, and this includes the gas lost by blowing up the fire each morning of stand-by run.

The efficiency of the producer did not vary more than 10 per cent. from full load to no load on the plant and approximates 77.5 per cent. on total heat value, or 71.5 per cent. on effective power value basis. Samples of refuse taken from the producer during the tests on Pittsburgh run-of-mine coal show the following composition for an average of six samples:

Ash, 85.1 per cent.; fixed carbon, 14.9 per cent. As the original coal contained about 7 per cent. ash, the actual percentage of combustible wasted was $14.9 \times 7 + 93 = 1.1$ per cent.

The rate of firing varied from 13 to 22.8, averaging 18.5 lb. per square foot of fuel bed area per hour at the green fuel zone. This higher rate might have been maintained indefinitely without vitrifying the gas from excessive oxidation or without clinker formation. The temperature of the gas leaving the fuel bed averaged about 900 degrees F., low enough to prevent clinker. When the fire was allowed to become much hotter the heat value of the gas fell slightly. This temperature, therefore, serves as a fair index of practical limits in regard to fuel bed temperature.

The average samples of gas taken from the engine show a heat value of about 115 B.t.u. effective power value; a considerably higher value could be obtained by using more vapor and producing higher hydrogen content. But high gas was not desired, as it would not permit the use of as high compression in the engines for which a gas of moderate heat value is better suited.

During all the tests a 175-hp. engine was kept under brake load, receiving all of the gas from the producer except when the latter was being forced beyond the capacity of the engine, and has provided a practical demonstration of the gas quality. As the engine gas was metered in both gas house and engine house, a check was thus available between the two meters and the extra load upon the producer determined.

Under normal working the average gas samples at the discharge of the exhauster showed from 0.015 to 0.025 grain of solid matter per cubic foot of standard gas. During a week's test on the auxiliary washing plant 25 determinations showed a range of solid matter from 0.006 to 0.043. This solid matter contains no tar, consisting entirely of dust and lampblack. The greater part of the heavier matter is generally thrown down at the discharge nozzle of the producer by a water spray.

This producer was opened on April 3, 1909, for the first time in one year. During this time the producer had been under fire continuously, under various operating conditions from maximum load to no load. There had been no repairs to the producer lining or other parts during this time of operation. The shutdown was made in

the presence of a number of officials of the United States Geological Survey, as well as some prominent commercial representatives. After examining the producer and noting the normal condition of the fuel bed, the quality of gas, as well as the load carried by the engine, the fire was pulled, affording a demonstration of the condition of the fuel bed inside of the producer after this long run. It was found that the producer lining was practically intact, even in the regions of the hottest fire zones. The wall of the evaporator was also in good condition, as were the tuyeres at the bottom. Previous to the demonstration the plant had been in operation only 10 hr. a day for about one month, and, although a straight air blast was employed in starting up, practically no clinker was found in the entire fuel bed. From 1 to 2 ft. above the lower tuyere the fuel was practically all coke in the various stages of formation, from ash at the bottom to green coke at the top. No ash was found in any of the fuel bed proper, while the largest piece of clinker found was hardly over 6 in. in diameter. No clinker bridge formation was formed across the fuel bed, and at no time was it necessary to rake the fire or ash down. There was no difficulty in removing all of the fire bed, which settled down as the ash was removed, requiring only 45 min. to do this work.

The producer after a year's run could be put in operation again for an indefinite period. A small amount of material clung to the lining at the fire zone, but most of this was coke and could readily be broken off, thus distinguishing it from fused clinker. An examination of the lower zone of the producer showed that the region where material was adhering to the fire bricks was that which could not be reached by the poker bars. Where it was possible to rake the walls all ash and clinker were readily removed.

The interior of the static scrubber was examined. This had been in operation for practically four months, during which time Pittsburgh coals, lignite and other materials had been tested. Only a slight deposit of sludge was found covering the perforated plates. During these four months the total drop in pressure through the scrubber had increased almost 4 in., due to the deposit that had gathered. The material found consisted largely of lampblack, with very little evidence of tar formation. This is not extraordinary, for the reason that during part of the test, especially with refuse and high volatile fuels, the fires had to be started without the use of steam and with a shallow fuel bed, so that some deposits of tar might have been expected under the circumstances.

On the following day the water vaporizer was also examined internally. There were no cracks visible next to the hot fire and no hard scale in the interior. In the bottom of the vaporizer there was a small deposit of sludge, but this was quite soft and was easily flushed out with a hose. The construction of the vaporizer with loose covers made it an easy matter to examine the interior at any time and remove any material scale or hard deposit that might tend to form.

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Passaic Steel Company Sale Set Aside.—In the United States Circuit Court at Trenton, N. J., June 7, Judge Lanning set aside the receivers' sale of the Passaic Steel Company's plant at Paterson, N. J., to Lawrence Fagan, Hoboken, N. J. At the same time Judge Lanning discharged the three receivers of the company and appointed William J. Magie as receiver. The Court said that sufficient time had not been given for further bids before Receiver Lee, acting as auctioneer, had declared the property sold. The bid of Lawrence Fagan was \$190,000. The Court said that inasmuch as inventories taken a short time previous showed assets of more than \$600,000 the price obtained seemed inadequate, and that even if the action of the auctioneer had not been questioned the Court would probably have set aside the sale on the ground of insufficiency of price. It was further ordered that the bondholders' committee, who objected to the confirmation of the sale, should at once file a bond that at the next sale they would make the first bid for the assets in a sum not less than \$250,000.

SCHOEN STEEL WHEELS.

Manufacturers are Standardizing Designs for Various Classes of Service.

From advance sheets of a new pamphlet of the Carnegie Steel Company we take the information given below concerning standard designs and specifications for Schoen steel works as manufactured by that company. The publication is of particular interest because it marks the beginning of an effort by the manufacturers of solid steel wheels to standardize their output and to bring about the general adoption of common standard designs in place of hundreds of individual ideas in regard to the proper dimensions of wheels for various classes of service.

The idea of substituting steel wheels for cast iron followed logically the building of steel freight cars, as it soon became evident that the heavier loads which steel cars would permit could not safely be carried on cast iron wheels, and it was to meet this condition that Charles T. Schoen, the first builder of steel cars, conceived the idea of equipping them with steel wheels. The first steel car was built in 1896 and the first steel wheel was manufactured in 1903 after a long series of experiments covering five years prior to that date. The Schoen Steel Wheel Company, which was purchased by the Carnegie Steel Company in July, 1908, was organized in May, 1903, after Mr. Schoen had personally designed and installed the first machinery for making steel wheels. The Schoen plant, located at McKees Rocks, Pa., is now a part of the Homestead Steel Works organization, and consists of two units which can be operated independently of each other from the first heating of the blank to the final finishing in the lathe. Its present capacity, which has not been increased materially since its purchase, is approximately 700 wheels per day.

The Rolling of Steel Wheels.

In general the process of manufacture consists in forging and rolling the open hearth steel slab into the required form. The slabs from which the wheels are manufactured are rolled from steel ingots made at Homestead. They are rectangular in form, the dimensions being proportioned to give the necessary weight of metal for the particular type of wheel which is to be made from them. These rectangular slabs are heated to a forging temperature and forged into a crude form only slightly resembling the outlines of a wheel by means of a 7000-ton hydraulic press fitted with dies, designed to force the metal from the portion of the slab which is eventually to become the web of the wheel into the hub and rim. In this same process the superfluous metal at the corners of the slab is sheared off, leaving the blank which is really the basis of the finished wheel. This circular blank is allowed to cool and all fins and surface imperfections, which might be carried through subsequent operations and affect the finish of the rim, are chipped off. The piece is reheated and forged a second time under 5000 tons pressure, the dies used in this process being so shaped as to produce a form a little nearer that of the finished wheel. At this stage the flange of the wheel first appears. After leaving the second forging process the hub is punched and the embryonic wheel is placed in a heating furnace preparatory to rolling.

The rolling mill is a most intricate and complicated piece of machinery. The wheel is placed on a spindle in a vertical position, so that it is engaged by five distinct rolls. One set bears with great force against each side of the web, at the same time pulling endwise against the inside of the rim. A second set engages opposite faces of the rim and a fifth roll resists the longitudinal pressure of the web rolls and bears against the tread and flange. The action of the web rolls rotates the wheel on its spindle. The rolling is continued until all irregularities disappear and the wheel has cooled to a dull red heat.

From this point on no more work is done upon the metal and all that remains is to put the wheel through

certain finishing processes. The first of these is dishing or coning. When placed in the coning press the wheel is perfectly symmetrical—i. e., a plane passed through the center of the web also cuts the center of the tread and divides the hub in halves; in other words, the hub projects an equal amount beyond each face of the rim. After coning under 1200 tons pressure the hub projects beyond the back and recedes from the face of the rim. Under the same press the wheel is made truly round by compressing its circumference in a die composed of segments of a circle of the proper radius. The wheel is now ready for the machine shop, where the hub is bored and, if for other than freight car service, the tread and flange are machined. The appearance of the cross section after each of the processes just described is shown by the six cuts in Fig. 1.

Restoring the Contour of Worn Wheels.

In reckoning the economies of the steel wheel it is not to be considered as a single life wheel, since after a certain period of wear the contour can be restored by turning and the wheel placed in service again. This operation is repeated until the rim is worn down to the minimum safe thickness, which in steam railroad service is considered $\frac{3}{8}$ in., but in street and interurban service is indefinite, depending upon the weight of the car and the speed attained, $\frac{1}{4}$ in. or less being sufficient in many cases. Fig. 2 illustrates the periods of wear obtained



After First Stage.—The slab has been heated, subjected to forging under 7000 tons pressure, and sheared to circular form.



After Second Stage.—The wheel has been reheated and forged under 5000 tons pressure. Before it is withdrawn from the press, the rim alone is subjected to an extra forging operation.



After Third Stage.—The hub has been punched.



After Fourth Stage.—The wheel has been subjected to a wash heat and rolled in a specially constructed machine.



After Fifth Stage.—The wheel has been dished and made truly round under 1200 tons pressure.



After Sixth and Final Stage.—All necessary machining of tread, flange and hub has been done.

Fig. 1.—The Schoen Steel Wheel in Various Stages of Manufacture.

from a rim $2\frac{1}{2}$ in. thick and shows the amount of metal it is usually necessary to turn off in order to restore the contour after each period of wear. This diagram is not constructed upon theory, but shows actual results which have followed careful attention to the condition of wheels in service and their withdrawal at the critical time to secure the greatest amount of wear with the least waste of metal from turning. It will be noted that three periods of service, each wearing away $\frac{1}{8}$ in. thickness of metal and two turnings of $\frac{1}{4}$ in. each, are obtained from a $2\frac{1}{2}$ -in. rim. The total thickness of wearing body, therefore, available for actual service is $1\frac{1}{2}$ in. The class of service in which a wheel is used will have considerable to do with the mileage obtained from this thickness of metal; under freight cars, for instance, a record for Schoen steel wheels has been obtained as high as 20,000 miles per 1-16 in., which means that from the 18-16 in. available in a $2\frac{1}{2}$ -in. rim, 360,000 miles may be obtained. Reckoning 40,000 miles as about the average life of a cast iron wheel in freight service, a steel wheel may become the equivalent of 6 to 10 cast iron wheels.

In the case of street and interurban practice each individual case demands careful investigation and study in order to determine the most economical wheel diameters and rim thicknesses for the fixed conditions surrounding the operation of a given road. For example, a

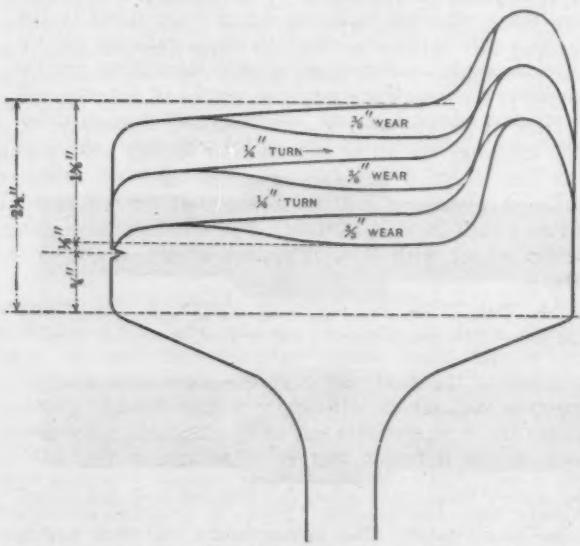


Fig. 2.—Periods of Wear for a Steel Wheel with $2\frac{1}{2}$ -In. Rim, Also Contour After Each Turning.

road using a 33-in. cast iron wheel will probably not be able to obtain an economical life from a steel wheel of the same diameter, because, however thick the rim may be when new, the chances are it cannot be worn down to the minimum safe thickness, since in so doing the diameter of the wheel would be reduced to such an extent that there would not be sufficient clearance between the gear boxes or motors and the street. In other words, if the allowable drop of the car body mounted on trucks with 33-in. wheels is $1\frac{1}{2}$ in., it would be useless to provide 33-in. wheels with $2\frac{1}{2}$ -in. rim thickness, as only $1\frac{1}{2}$ in. of this metal could be utilized and the remaining life of the wheel would be wasted. In such a case it is advisable, if possible, to use a 34-in. wheel when new in order to get the additional clearance above the street level and so permit the entire wearing body of the wheel to be used.

Where interurban and city cars are operated by the same company, it is the common practice to order large diameter wheels with thick rims, which are used under interurban cars until reduced to the minimum diameter for these cars and then withdrawn and applied to the city equipment. This, of course, increases the mileage obtainable from the wheels and makes them correspondingly more economical.

Carnegie Standard Designs.

The question of design is one to which the Carnegie Steel Company has recently been directing its attention. In the pamphlet just issued are 26 designs which will be

manufactured as standard output. It is set forth that the standardization of designs and the elimination as far as possible of slight differences in diameters of wheels to be used in the same service are desirable from the standpoint of the user, because standard equipment is always more economical than special, and from the

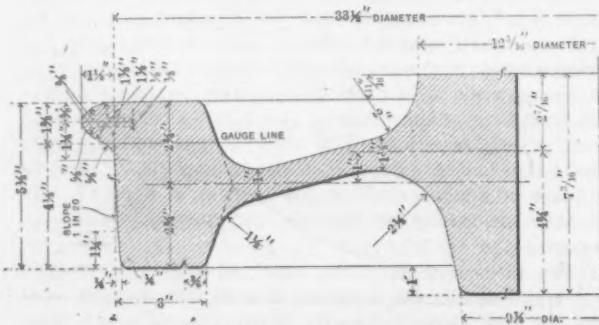


Fig. 3.—33½-In. Engine Truck Wheel.

standpoint of the maker, because of economy in manufacture and the greater facility with which standard wheels can be supplied. In working out the problem of standardization the Carnegie Steel Company has classified wheels under four headings:

1. Steam railroad wheels, subdivided into engine truck, tender, passenger train car and freight car.
2. Subway and elevated railroad wheels.
3. Street railroad wheels.
4. Interurban railroad wheels.

The Carnegie design for an engine truck wheel presents a novel feature which has heretofore been unknown in solid steel wheels; this is the use of a hub of larger diameter on the side next to the journal box than on the opposite side, in order to obviate the necessity of shrinking on a ring of brass or other metal, to provide the necessary bearing. It has been considered impracticable to roll a wheel with this type of hub until very recently, since a series of experiments has been conducted at the Schoen plant, with the result that the company now offers this type of wheel to the railroads in three diameters—30½, 33½ and 36½ in.—all with rims 3-in. thick, which is found to give the maximum amount of wear under the majority of engine trucks as now constructed by locomotive builders. The 33½-in. diameter engine truck wheel is shown in section in Fig. 3.

Four designs of tender wheels are presented, of two diameters with two thicknesses of rim for each. For passenger train cars four different designs are proposed, one 33 in. in diameter, two 36 in. in diameter and one 38

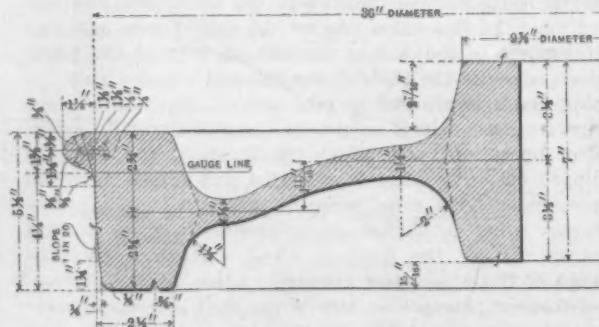


Fig. 4.—36-In. Passenger Car Wheel.

in. in diameter. The most common size of passenger train car wheel in use is the 36 in. The two drawings of this diameter are identical, with the exception that one has a rim $2\frac{1}{2}$ in. thick, while the other has a 3-in. rim. The drawing of the 36-in. passenger train car wheel, with $2\frac{1}{2}$ in. thickness of rim, is reproduced in Fig. 4.

Practically only one diameter of freight car wheels is in use to-day, the 33 in., and this is the only size the Carnegie Steel Company shows in its set of standards. Two thicknesses of rim, however, are to be obtained. The characteristic feature of the freight car wheel, as manufactured by the Carnegie Company, is the fact that freight car wheels will, as a rule, be furnished with contours as rolled—i. e., no machine work will be done on

them except the facing and rough boring of the hubs. Wheels for all other classes of service are machined on treads and flanges. The rolled tread without machining is considered to give a slightly better wearing surface during the early life of the wheel by reason of its having on it the tough skin produced by the rolling machine.

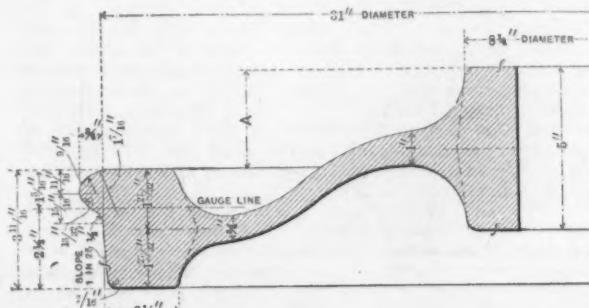


Fig. 5.—Standard 31-In. Street Car Wheel.

It is possible to leave this skin untouched on wheels for freight cars, because the speed at which freight trains are run does not require the exactness of finish, which is necessary on wheels for passenger service, and which, of course, it is the object of machine work to produce.

Outside the innovation in engine truck wheels mentioned above, there is nothing very unusual about the standard designs described and illustrated as the diameters and other important dimensions are fixed by common practice, and the contours of tread and flange have been the subject of legislation by the various Railway associations. It is to be said, however, that the Master Car Builders' Association has never adopted or recommended a standard contour for steel wheels, and in the absence of any such officially recognized contour, the standard adopted by the American Railway Master Mechanics' Association for steel tired wheels is used throughout on the standard steam railroad wheels as manufactured at the Schoen plant.

Large numbers of steel wheels are in use in the various subways and on elevated roads, and they promise to be more extensively used on account of the safety they afford. In placing before the wheel users of the country its standard designs, the Carnegie Steel Company has included three for subway and elevated service. The

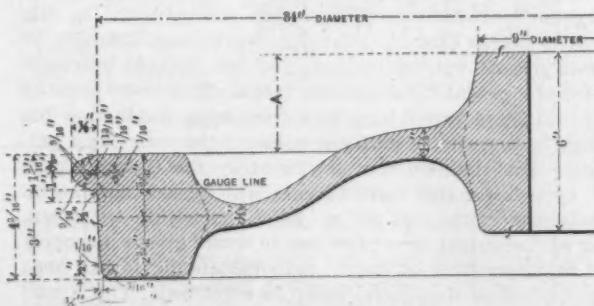


Fig. 6.—Standard 34-In. Interurban Car Wheel.

diameters are 30 in., 31 in. and 34 in., but otherwise the dimensions are quite similar to those of the ordinary steam railroad wheels, the contour of tread and flange being identical. The hubs for the trailer wheels, however, are only 9 in. in diameter, while the hub of the standard motor wheels is the same as for steam railroad service—9 1/2 in.

The broadest field for work in the standardization of design is offered by the street and interurban situation. Thus far there have been almost as many different designs of street and interurban wheels as users. Every road has had its own standard diameters, widths and thicknesses of rim, hub sizes, coning and contours. In attempting to overcome this condition and after investigating a large number of individual cases and working out the problems from both technical and economical standpoints, the Carnegie Steel Company has settled upon comparatively few designs. A range in diameters from 31 in. to 34 in. is provided for by the standard

designs. By all odds the most popular diameter is 34 in. The dimensions of the rim, with the exception of its thickness, are in accordance with the adopted standard of the American Street and Interurban Railway Association, the total width of rim being 3 11-16 in., and the width and height of flange being 1 3-16 in. and 3/4 in. respectively. The hubs shown are all 8 1/4 in. in diameter, which is sufficient for the largest wheel seat ordinarily used in this class of service, while the length of hub is 5 in. for the 31-in. and 32-in. wheels, and 5 1/2 in. for the 33-in. and 34-in. wheels. The coning dimensions, or in other words the projection of the hub beyond the back of the rim, may be either 2 15-16 in. or 1 15-16 in., as specified. Fig. 5 is a reproduction of the drawing for a standard 31-in. street car wheel.

A set of wheel designs entirely separate from the street railroad wheels is published for interurban railroad cars. Wheels for both classes of service have been heretofore considered practically interchangeable on account of the lack of standard designs for either. The separation into distinct groups is one of the first steps taken by the Carnegie Steel Company in the direction of standardization.

The diameters settled upon for interurban service range from 34 in. to 37 in. inclusive, a total of six different designs being published, two of which are 34 in., one 35 in., two 36 in. and one 37 in. in diameter. The American Street and Interurban Railway Association has recognized two widths of rim for interurban wheels, but the great majority of users prefer the narrower width, which is 4 3-16 in., and which has been used in the preparation of the Carnegie Steel Company's standards. The hub diameter for all of this class of wheels is 9 in. and the hub length 6 in. Coning, as in the case of street railroad wheels, is left to be specified by the user as either 2 15-16 in. or 1 15-16 in. The standard 34-in. interurban wheel with 3-in. thickness of rim is shown in Fig. 6.

Accompanying the drawings shown in the Carnegie pamphlet are the standard specifications of the company for Schoen steel wheels covering the chemical composition of the steel and character of workmanship, inspection, &c., which will apply to the finished product. There are three separate sets of specifications made necessary by the different degrees of refinement required in the workmanship of the different types of wheels, the quality and chemical composition of the steel being the same in all cases. The carbon range is 0.65 to 0.85 per cent.; manganese from 0.60 to 0.85 per cent.; silicon, 0.08 to 0.25 per cent.; phosphorus not to exceed 0.050 per cent., with the same limit for sulphur. One set of specifications governs the manufacture of freight car wheels; the second set the manufacture of engine truck, tender, passenger train car, subway and elevated railroad wheels, and the third set, street and interurban railroad wheels.

The Algoma Steel Company, Sault Ste. Marie, Ontario, Canada, has placed a contract with Mackintosh, Hemphill & Co., Pittsburgh, for an 18-in. and 12-in. combination structural and merchant mill. The equipment consists of continuous heating furnaces with gas producers, coal and ash handling machinery, an 18-in. and a 12-in. three-high mill (to be driven by electric motors), tables, cooling beds with transfer machinery, straightening machine, saws and shears. There will be electric overhead traveling cranes in the main building, and every provision is to be made for the economical handling of the varied products which it will be necessary to manufacture in order to meet the demands of the Canadian market.

The imports of iron and steel into Great Britain in the first four months of 1909 were 379,028 gross tons, against 348,802 tons in the first four months of 1908. The April imports were 97,959 tons and 96,533 tons, respectively. April iron and steel exports this year and last year were 374,842 tons and 379,722 tons, respectively. For the first four months of 1909 the exports were 1,345,742 tons, as compared with 1,396,912 tons in the corresponding period in 1908.

Proposed Steel Rail Specifications

The Report of the Committee of the American Society for Testing Materials.

The rail sub-committee of Committee A of the American Society for Testing Materials will report at the forthcoming meeting at Atlantic City its proposed standard specifications for Bessemer steel rails, which are the result of further careful consideration of the many points at issue. There was published in the *Railroad Age Gazette* of May 21, 1909, a very valuable comparison in parallel columns of the rail specifications drawn up by the different bodies which have proposed specifications, viz.: the American Railway Association, the Steel Manufacturers of America, the American Society of Civil Engineers, the American Railway Engineering and Maintenance of Way Association and the American Society for Testing Materials. This was preliminary to the adoption by the committee of the following proposed specifications:

1. (a) The entire process of manufacture and testing shall be in accordance with the best current practice, and special care shall be taken to conform to the following instructions:

(b) Ingots shall be kept in a vertical position in the pit heating furnaces until ready to be rolled or until the metal in the interior has time to solidify.

(c) No bled ingots shall be used.

(d) There shall be sheared from the end of the blooms formed from the top of the ingots not less than $\frac{1}{2}$ per cent.* and if, from any cause, the steel does not then appear to be solid, the shearing shall continue until it does.

2. Chemical Composition:

	50 lb. up	61 lb. up	71 lb. up	81 lb. up	91 lb. up
Carbon	0.35-0.45	0.35-0.45	0.40-0.50	0.43-0.53	0.45-0.55
Phosphorus, not over	0.10	0.10	0.10	0.10	0.10
Silicon, not over.	0.20	0.20	0.20	0.20	0.20
Manganese	0.70-1.00	0.70-1.00	0.75-1.05	0.80-1.10	0.84-1.14

3. The number of passes and speed of train shall be so regulated that on leaving the rolls at the final pass the temperature of rails of sections 75 lb. per yard and heavier will not exceed that which requires a shrinkage allowance at the hot saws of 6 7-16 in. for a 33-ft. 75-lb. rail, with an increase of 1-16 in. for each increase of 5 lb. in the weight of the section.

No artificial means of cooling the steel shall be used after the rails leave the rolls, nor shall they be held before sawing for the purpose of reducing their temperature.

4. One drop test may be made on a piece of rail not less than 4 ft. and not more than 6 ft. long, selected from each blow of steel.

The rails shall be placed head upward on the supports and the various sections shall be subjected to the following impact tests under a free falling weight:

Weights of rail per yard.	Hight of drop in feet.
50 to 60 lb.....	15
61 to 70 lb.....	16
71 to 80 lb.....	16
81 to 90 lb.....	17
91 to 100 lb.....	18

If any rail breaks when subjected to the drop test, two additional tests will be made of other rails from the same heat of steel, and if either of these latter tests fail, all the rails of the heat which they represent will be rejected; but if both of these additional test pieces meet the requirement all the rail of the heat which they represent will be accepted.

The drop testing machine shall have a tup of 2000 lb. weight, the striking face of which shall have a radius of not more than 5 in., and the test rail shall be placed head upward on solid supports 3 ft. apart. The anvil block shall weigh at least 20,000 lb. and the support shall be part of or firmly secured to the anvil. The report of drop test shall state the atmospheric temperature at the time the test was made. The temperature of the test pieces, when tested, shall not be less than 60 degrees F. or greater than 120 degrees F. The testing shall proceed concurrently with the operation of the mill.

5. Unless otherwise specified, the section of rail shall be the American standard, recommended by the American Society of Civil Engineers, and shall conform, as accurately as possible, to the templet furnished by the railroad company, consistent with clause No. 41, relative to specified weight. An allowance of 1-64 in. less and 1-32 in. greater than the specified height and 1-16 in. in width will be permitted.

6. The weight of the rails shall be maintained as nearly as possible, after complying with clause No. 51, to that specified in contract. A variation of $\frac{1}{2}$ of 1 per cent. for an entire order will be allowed. Rails shall be accepted and paid for according to actual weights.

7. The standard lengths of rails shall be 30 or 33 ft. Ten per cent. of the entire order will be accepted in shorter lengths, varying by even feet down to 24 ft. A variation of $\frac{1}{4}$ in. in length from that specified will be allowed.

* The percentage of minimum discard in any case to be subject to agreement, and it should be recognized that the higher this percentage the greater will be the cost.

Both ends of all short length No. 1 rails shall be painted green.

8. Circular holes for splice bolts shall be drilled in accordance with specifications of purchaser. The holes shall accurately conform to the drawing and dimensions furnished, and must be free from burrs.

9. Care must be taken in hot-straightening the rails, and it must result in their being left in such a condition that they shall not vary, throughout their entire length, more than 5 in. from a straight line in any direction when delivered to the cold straightening presses. Those which vary beyond that amount or have short kinks shall be classed as No. 2 rails and shall be so stamped. The distance between supports of rails in the gagging press shall not be less than 42 in. Rails shall be straight in line and surface when finished—the final straightening being done while cold—smooth on head, sawed square at ends—variations therefrom to be not more than 1-32 in.—and prior to shipment shall have the burr caused by the saw cutting removed and the ends made clean.

10. The name of the maker, the weight of the rail and the month and year of manufacture shall be rolled in raised letters on the side of the web, and the number of the heat shall be so stamped on each rail as not to be covered by the splice bars. For rails weighing 70 lb. per yard or over a letter shall be stamped on the side of the web to indicate the portion of the ingot from which the rail was rolled.

No. 1 rails shall be free from injurious defects and flaws of all kinds.

11. No. 2 rails will be accepted to at least five (5) per cent. of the whole order. Rails that possess any injurious defects, or which for any other cause are not suitable for first quality, or No. 1 rails, shall be considered as No. 2 rails; provided, however, that rails which contain any physical defects which impair their strength shall be rejected. The ends of all No. 2 rails shall be painted white in order to distinguish them. Rails rejected under the drop test will not be accepted as No. 2 rails.

12. The inspector representing the purchaser shall have free entry to the works of the manufacturer at all times while his contract is being executed, and shall have all reasonable facilities afforded him by the manufacturer to satisfy him that the rails are being made in accordance with the terms of the contract. All tests and inspection shall be made at the place of manufacture prior to shipment, and shall be so conducted as not to unnecessarily interfere with the operation of the mill.

13. The manufacturer shall furnish the inspector, daily, with carbon determinations of each blow, and a complete chemical analysis every 24 hr., representing the average of the other elements contained in the steel for each day and night turn. Analyses shall be made on drillings taken from small test ingots, the drillings being taken at a distance of not less than $\frac{1}{4}$ in. beneath the surface of said test ingots. On request of the inspector the manufacturer shall furnish drillings for check analysis.

The Idea of Expanded Metal Patentable.

In the Supreme Court of the United States at Washington a decision in favor of the company has been given in the case of the Expanded Metal Company *vs.* Eugene S. Bradford. The action was brought in the United States Circuit Court for the Eastern District of Pennsylvania by the company, which charged infringement of a patent for stretching metal. That court granted an injunction prohibiting Bradford from conducting his work in accordance with the ideas of the company's patents. This decision was overruled by the Circuit Court of Appeals for the Third Circuit, which held that the invention so-called was not an invention within the meaning of the patent laws; further, it would give a monopoly on the stretching of metal, notwithstanding it had been known before that metal could be stretched. The Appellate Court held that the idea of the device was valuable, but nothing more, as it did not explain the method of proceeding. "Patents," said that court, "are not granted on abstract ideas." The decision of the Supreme Court, reversing the finding of the Court of Appeals, was announced by Justice Day. A case involving the same patent, in which the patent was sustained, was affirmed by Justice Day's opinion.

International Congress of Mining and Metallurgy.—At the final session of the International Congress of Mining, Metallurgy, Applied Mechanics and Practical Geology, held at Liege, Belgium, in 1905, at the occasion of the exposition in that city, it was decided to accept the invitation of the mining and metallurgical industries of Westphalia and the Rhenish provinces. The Congress will hold its meeting at Dusseldorf toward the end of June, 1910, and it will last a week. Preliminary work has been started by Dr. E. Schroedter, Jacobistrasse, Dusseldorf, the editor of *Stahl und Eisen*, who is in charge of the programme.

Safety of the Queensboro Bridge.

Report of a Commission of Engineers to the Pennsylvania Steel Company.

The formal opening of the Queensboro Bridge across the East River, connecting the Borough of Manhattan and the Borough of Queens by way of Blackwell's Island, was celebrated Saturday, June 12, with unusual ceremonies, participated in by representatives of the municipal, State and national governments. The bridge, which is New York's longest and its only cantilever, was described in *The Iron Age* of March 7, 1907, page 727, and the question raised as to its safety was referred to in our issues of November 12, 1908, page 1381, and November 19, 1908, page 1450. Its formal transfer to the authorities of the two boroughs makes timely a report recently made by a commission of engineers who, at the request of the Pennsylvania Steel Company, builder of the bridge, reviewed the conclusions reached by the experts who reported last year to the Superintendent of Bridges of New York City—Prof. Wm. H. Burr and Boller & Hodge.

Vice-President J. V. W. Reynders of the Pennsylvania Steel Company addressed a letter on December 22, 1908, to four well-known bridge engineers—Charles MacDonald, C. C. Schneider, H. R. Leonard and J. E. Greiner—calling their attention to the criticisms of the design of the bridge which had appeared and the analogies drawn between it and the Quebec bridge. He recited that the Pennsylvania Steel Company contracted with the city of New York November 20, 1903, to furnish the steel superstructure in accordance with plans and specifications prepared by the Department of Bridges under the commissionership of Gustav Lindenthal. On December 15, 1904, the city made a supplementary contract with the bridge company providing for certain work not originally contemplated, including the addition of two elevated railroad tracks. In referring to the criticisms which came out after the completion of the bridge last year Mr. Reynders said that they did not reflect on the work done by his company, and the reports of the city's experts were uniformly favorable as to the steel, the shop workmanship, the erection and field riveting and the agreement of the sections with the working drawings. Yet, while not involved in the issues raised, the Pennsylvania Steel Company considered that its knowledge of the situation should be made available both to the engineering profession and the general public. From this point of view the company asked its chief engineer, F. C. Kunz, to prepare a report on all the questions raised. This report Mr. Reynders transmitted to the four engineers above named and asked them, acting as a commission, to go carefully into the whole matter and advise whether they agreed with Mr. Kunz's report.

Report by the Pennsylvania Steel Company's Engineer.

In a voluminous pamphlet published in the past week the Pennsylvania Steel Company gives Engineer Kunz's report in full, together with that of the commission of four. Mr. Kunz reviews at length the report of the New York City experts, discussing in particular detail the questions of "regular" live load and "congested" live load. Illustrating the possibilities of congested live load, he presents photographs of crowds at various resorts, on ferryboats and in other crowded public places, comparing actual weights per square foot of such crowds with the calculated weights under congested load for the new bridge. The maximum crowding of vehicles and trolley cars is also discussed, to show how practically impossible is any near approach to such a live load as the extreme that has been provided for. Mr. Kunz says that while the reports of the experts are fair, they are based on assumptions different from those originally made. Quoting from the report made by a commission of bridge experts on the design of the Manhattan Bridge, he shows that the estimated greatest possible congested weight per linear foot was 16,000 lb. Concerning this the Manhattan Bridge Commission said: "This is a possible load, which could never occur unless special pains were

taken to produce it." In his discussion of the question of live load Mr. Kunz makes numerous quotations from high authorities in bridge engineering. He also takes up and answers the statement that the dead load stresses of the Blackwell's Island Bridge were considerably underestimated. Based on the figures he presents and his discussion on the probability of the different live loads Mr. Kunz makes the following recommendations:

1. The paving should be reduced to its originally intended weight on the whole bridge, or, which may be even more effective for its final purpose of reducing certain stresses, reduce the paving only on the river spans, leaving on the island span and the two anchor arms the heavy paving, as the writer suggested about three months ago, before the reports of the experts were known.

2. With the paving altered in this way, the bridge is safe for the intended traffic, viz.: two promenades of 11 ft. each, a roadway of 35½ ft., four trolley tracks of 1000 lb. per linear foot, and four elevated railroad tracks of 1700 lb. per linear foot.

3. The experts state that, since the bridge was designed, the weight of trolleys and rapid transit trains increased, the former from 1000 to 1460 and the latter from 1700 to 1810 lb. per linear foot. This may or may not be only a passing phase in the development of the rolling stock of electric traffic. In the next few years, before any rapid transit traffic will cross the Blackwell's Island Bridge, many changes in the rolling stock may occur, the cars may get longer, or the character of the traffic may change (moving seat platforms, &c.), and the calculations will have to be revised for the new conditions.

4. To remove the stringers designed to carry two elevated railroad tracks is not necessary, and not advisable, as they now support the footwalks and new ones would have to be provided to replace them, and, as nobody can tell whether they may not be of use within the next 10 years, should the weight or character of rapid transit traffic change.

5. A thorough investigation of the actual traffic on the existing bridges in New York City should be made by the engineering staff of the Department of Bridges (not by laymen) in order to prove conclusively that the traffic needs no police regulations, beyond those customary in the case of ordinary city streets on which "congestion" or "bunching" of traffic to the extent of 50 lb. per square foot over any great area would not be tolerated by the police, and to establish again that sense of proportion which, in this whole controversy, seems to have been lost.

The Commission's Endorsement.

The commission of four appointed by Vice-President Reynders says of Engineer Kunz's report: "We have carefully examined this report, together with all data and information furnished in connection therewith, including the specifications, contract, strain sheets, reports of experts, &c., and substantially indorse the arguments, conclusions and recommendations therein set forth." Of the reports of the city's experts, the commission says:

Owing to the technical nature of their reports and a lack of clear understanding of the significance of the *assumptions* upon which the computations were based, the statements and conclusions contained therein have led to many serious misconceptions in the public mind. They have been misunderstood and misinterpreted by engineers who are not experts in bridge design, have been used by a small section of the local engineering press as a basis for the unjust assumption that the early designers of the bridge, as well as those who followed, blundered seriously, and foreign technical journals have taken the opportunity for the abuse and wholesale condemnation of American practice in general, and the judgment of American engineers in particular.

The public confidence, which was disturbed by the Quebec failure and by the unwarranted comparison of that bridge with the Blackwell's Island Bridge structure, has certainly not been restored by the reports of the city's experts on the latter bridge. In fact, the strength of the Blackwell's Island Bridge has now become a question of such serious and far-reaching importance, affecting not only the confidence of the public in engineering works, but the professional standing of American engineers, that it is assuredly proper and advisable for the contractors to make available their knowledge of the situation.

In the course of its further discussion the commission makes this comment on the original specifications of the Bridge Department relative to congested load and the interpretation put on these specifications by the city's experts:

The High Stresses Obtained by the City's Experts.

The design of this structure, a cantilever bridge without a suspended connecting span, gives a continuity not found in the ordinary cantilever, inasmuch as a load on any part of the bridge affects the stresses in the entire structure from end to end. A strict interpretation of the specifications requires the loads to be placed in such positions as to give the greatest stress on any member of the structure. The Bridge Department, in preparing the strain sheets from which the bridge was built, did not strictly follow this clause, and applied the loads, both "working" and "congested," in one continuous stretch, this stretch of any length covering one or more of the subdivisions of the bridge or the entire length of the structure, but with no unloaded gaps. The city's experts, in making their analysis of the struc-

ture, interpreted the specifications literally, and obtained stresses (the mathematical accuracy of which we do not question) alarmingly high, when considering the "congested" load, together with the increased weight of pavement.

A reasonable and proper distribution of assumed live load on a structure of this type and magnitude is again a matter of engineering judgment. The adopted method of the Bridge Department was well within their rights, especially as regards the so-called "congested" load, and it is our judgment that such placing of the loads would cover all possible contingencies liable to arise.

The alarmingly high stresses obtained by the experts were arrived at by a strict interpretation of the printed specifications by placing the "congested" load of 16,000 lb. per linear foot on certain fixed portions of the bridge with fixed lengths of gaps in which there could be no load whatever; a method that might well be described as the placing of impossible loads in an impossible manner.

Considering the character of the structure and assumed loads, the unit stresses specified and used in the computations were conservative. A distinction should be made, however, between unit stresses for "working" loads and "congested" loads. The city's experts recommend, with one exception, the unit stresses for working loads fixed by the specifications, the exception being a slightly higher unit for steel in compression, due to change in reduction formula. One of the experts, after listing "working" unit stresses substantially in accord with the specifications, stated that these stresses "are a limit of safety for the direct stresses from the sum of the live and dead loads, as the secondary and snow load stresses heretofore referred to will add to these stresses." The secondary stresses are small, especially in the tension members, where the higher units are specified, and we believe that a snow load may be safely neglected when considering working or "congested" loads. It would, therefore, seem that the term "limit of safety," as applied to such working stresses, was unfortunate and tending to cause unnecessary alarm. The "limit of safety" would, in a theoretically perfect structure, be just under the elastic limit of the material; secondary stresses and imperfect distribution of stresses should be allowed for, and we believe that sufficient allowance was made for such factors in the specifications, in fixing on the unit stresses to be used in connection with the "congested" load.

Conclusions.

The commission presents its conclusions in the following terms:

1. We are of the opinion that the live loads provided for in the original specifications, with the subsequent modifications made by the Bridge Department, both as to weights and distribution of same, are sufficient for the traffic the bridge is intended to carry, and cover all possible contingencies.
2. That the unit working stresses specified are in accordance with good practice, and the limiting stresses for extreme conditions of loading are well within safe limits.
3. That the actual weight of steel superstructure practically agrees with the estimated weight used in calculating the stresses, within the usual allowance permitted in bridge work.
4. That the superstructure, as built, conforms to the specifications and designs approved by the Bridge Department.
5. That the bridge, as now constructed, with provision for two elevated tracks is entirely safe to carry all traffic which can possibly come upon it under present conditions, without any other restrictions than those necessary to regulate such traffic.
6. That for conditions of traffic—i. e., the weight of vehicles, surface and elevated cars—as now existing, the bridge would also be safe to carry all the lines of traffic contemplated in the final design of the bridge subject to ordinary traffic regulations.

Bulletin No. 30, on the "Rate of Formation of Carbon Dioxide in Gas Producers," by Dr. J. K. Clement, L. H. Adams and Dr. C. N. Haskins, has just been issued by the Engineering Experiment Station of the University of Illinois. The writers set out to determine, so far as possible, the factors that govern the production of carbon dioxide in gas producers, and to calculate the percentage of CO formed for any time of contact of carbon and CO₂, and at any temperature. In the experiments CO₂ gas was passed through a porcelain tube filled with charcoal, coal, or coke, and heated in an electric furnace. The time of contact could be varied at will, and by changing the current a temperature range from 700 to 1300 degrees C. was obtained. Analyses were made by the Hempel method, both CO₂ and CO being absorbed. It was found that the percentage of CO formed depends upon the temperature and the time of contact of gas and carbon. With ordinary depth of fuel bed a high percentage of CO requires a high temperature—1300 degrees C. or above.

The steel steamer Isaac M. Scott, named for the president of the La Belle Iron Works, Steubenville, Ohio, was launched at Lorain, Ohio, June 12. It is 524 ft. long, and will enter the ore trade.

A Tariff Law Early in July.

The Situation as to Ferroalloy and Other Metal Duties.

WASHINGTON, D. C., June 15, 1909.—By agreeing to postpone consideration of the pending income tax amendments to the tariff bill until Friday, June 18, Chairman Aldrich of the Finance Committee has in effect given notice that by that date he expects that the Senate will have disposed of all the dutiable schedules and the free list. The discussion of the income tax amendments and the several alternative propositions now under consideration should not occupy more than a day, and as Senator Aldrich is confident that the administrative features of the bill can be disposed of in three or four days he expresses the opinion that the final vote on the measure will be taken not later than June 25. While admitting that remarkable expedition will be required to put the bill through conference before July 1, the date he has predicted for the taking effect of the new tariff law, he states very positively that he believes the bill will be in the President's hands and the special session adjourned before July 4. It should be said, however, that this is the optimistic view of the manager of the bill, and that other members of the Finance Committee, with no better sources of information than the chairman, but with less of his confident spirit, which has been in no way dashed by the recent bitter personal attacks upon him on the floor, will be satisfied if the bill can be laid before the President by July 10.

Notwithstanding the protracted debate, in which 90 per cent. of the time has been occupied by three or four so-called insurgent Republicans, nothing in the shape of a filibuster against the bill can be charged by the Finance Committee. Not a dilatory motion has been offered and there has been a marked absence of the glittering generalities which often characterize tariff discussion; on the other hand, the speeches of the insurgents have been directed to the technicalities of the schedules under discussion, and, although in many cases they have reflected very little accurate information, it has been apparent they have not been prepared for the purpose of killing time.

Opposition to Increased Rates in Metal Schedule.

The movement looking to the further amendment of the metal schedule by the substitution of duties in excess of those reported by the Finance Committee has made very little progress during the past week. In fact, so energetic has been the campaign of the advocates of downward revision and so effectively have the reports of President Taft's alleged intention to veto any tariff measure increasing the average ad valorem of the Dingley act been circulated that the members of the Finance Committee, a majority of whom would be willing to increase a number of items in the metal schedule, have come to doubt the expediency of doing so. Certain so-called "stalwart" Republicans, who have followed the Finance Committee through thick and thin, have privately expressed to the committee leaders their apprehension as to the effect of some of their votes upon their constituencies and have urged the committee not to report any further increases in the schedules. However, there has been much pressure upon the Finance Committee to advance the rates on structural steel and to increase the duty on steel rails to \$5 per ton. The committee has finally consented to raise the rate on structural steel valued at \$18 per ton or more from 3-10 cent per pound to 4-10 cent, leaving that valued at less than \$18 at the rate of 3-10 cent. Senators are also being urged to stand by the rate of \$2.50 per ton on wrought and cast scrap iron and scrap steel reported by the Finance Committee as an amendment to paragraph 116, and by the 25-cent duty on iron ore. The present disposition of the majority leaders is to adopt the committee rate on scrap and to permit the Conference Committee to be the final arbiter of this duty and the duty on ore.

The Fight for Lower Rates on Ferroalloys.

Representatives of independent steel interests have given much attention during the week to the situation

with respect to the ferroalloy duties, and it is understood they will make a final effort to reduce the rates when the bill is reported from the Committee of the Whole to the full Senate. It will then be in order to move a separate vote on paragraph 182 and, as it is believed the Finance Committee will not oppose separate ballots on important items, an opportunity will be afforded to present amendments scaling down the ad valorem of the more costly alloys and reducing the specific rate on blast furnace ferrosilicon from the Senate rate of \$6 to the House rate of \$4. The domestic producers of ferroalloys are prepared for this move, however, and will oppose it strongly. They have enlisted the friendly offices of several of the most influential of the Republican Senators who are not members of the Finance Committee and will make a hard fight to retain the committee rates. No feature of the entire tariff campaign has been more remarkable than the display of influence in both houses which the domestic ferroalloy producers have been able to make against apparently overwhelming odds.

In the discussion of the free list during the past week, the Senate amended paragraph 490 of the free list, relating to returned American products, so as to provide specifically for the free entry of iron or steel drums used for the exportation of acids, whether such drums are of domestic or foreign manufacture, provided they shall have been actually exported from the United States. The amendment requires proof of the identity of the drums under general regulations to be prescribed by the Secretary of the Treasury. It is further provided that free importation shall not be permitted in the event that drawback of duty has been allowed upon exportation. It is understood that this amendment will be opposed by the House conferees, but the outlook favors its adoption.

Free Entry for Models and Patterns.

At the instance of Senator Lodge of Massachusetts, paragraph 627, relating to models of inventions, &c., has been completely recast. As passed by the House it provided for the free entry of "models of inventions and all other improvements in the arts, to be used exclusively as models and incapable of any other use." The Finance Committee amended the paragraph by inserting after the word "art" the words "including patterns for machinery, not molds." On motion of Senator Lodge the committee amendment was disagreed to and the words "or patterns" inserted after the word "models," so as to make the paragraph read as follows:

Models or patterns of inventions and all other improvements in the arts, to be used exclusively as models and incapable of any other use.

Readers of *The Iron Age* will remember the controversy which arose upon an importation of machinery patterns brought to this country from Germany by Hoe & Co., and which were held by the customs officials to be dutiable because fit for molders' use. The Finance Committee amendment was intended to relieve the paragraph of all ambiguity, but the change made at the instance of Senator Lodge apparently leaves the provision in less definite form than as passed by the House. The Conference Committee is relied upon to clarify the language employed.

The Duty on Coal.

A sharp contest is expected when the Senate takes up paragraph 424 of the sundries schedule, which provides duties for bituminous coal at the rate of 67 cents per ton and upon composition fuels and coke at the rate of 20 per cent. ad valorem, with the proviso that any of the foregoing "when imported from any country, dependency, province or colony, which imposes no tax or duty on like articles imported from the United States shall be imported free of duty." The coal duty appears to be in a class by itself, and will be opposed by Senators who will be found to be high protectionists on everything else. At the same time certain Democratic Senators will oppose free coal, and the outcome cannot be predicted.

Senator Clark of Wyoming has introduced an amendment to paragraph 424 providing a rate of 15 cents per ton on all coal slack or culm that will pass through a $\frac{1}{4}$ -in. screen, provided that this duty shall be held to apply

only to "importations of coal slack or culm produced and screened in the ordinary way as such and so shipped from the mine, and shall not be applied in whole or in part to any importation of coal shipped from the mine or imported as coal, notwithstanding portions or percentages of said shipment would, as a matter of fact, pass through a $\frac{1}{4}$ -in. screen." Senator Clark's amendment is regarded as impracticable, because of the difficulty of determining the facts regarding the mining and preparation of the coal slack or culm taking the 15-cent rate, and is likely to be modified if adopted.

To Tax Dividends of Corporations.

The proposition to impose a tax of 2 per cent. on the dividends of corporations for a period of two years has received much attention during the past week as the result of unexpected gains by the allied Democrats and insurgent Republicans who have been urging an income tax. A week ago the Finance Committee leaders were able to exhibit a poll of the Senate showing a comfortable working majority in favor of a motion to refer all pending income tax amendments to the Judiciary Committee, with instructions to investigate the constitutionality of the Federal taxation of incomes and to report a constitutional measure, if the new tariff law "after a reasonable period" proved inadequate as a revenue producer. The Democrats were almost solidly united in favor of Senator Bailey's income tax project, but 16 insurgent Republican votes would be necessary to the adoption of this amendment or of a substitute which has been jointly prepared by Senators Bailey and Cummins. While the Finance Committee leaders are confident that the advocates of an income tax cannot muster a majority for any proposition, they desire, in the interest of harmony and with a view to an early vote upon the bill, to present a substitute proposition that will certainly command a majority vote without embarrassing Senators who are committed to an income tax. The proposed tax on the dividends of corporations, it is estimated, would produce approximately \$60,000,000 per annum, and, after having been in force for two years and having fully replenished the Treasury, could be permitted to expire by limitation. The temporary character of the proposed amendment naturally commends it to Senators who would otherwise oppose it, and the project is steadily gaining ground as a diplomatic device with which to prevent a rupture over the income tax issue.

Another compromise method of disposing of the income tax amendments involves their reference to the Judiciary Committee, with directions to report a constitutional income tax bill, if possible early in the regular session beginning next December, without regard to the revenue producing capacity of the new tariff law as demonstrated at that time. Such an arrangement would mean an opportunity for a vote on an income tax bill unhampered by other considerations, and in view of the confidence expressed by the champions of this tax of their ability to secure its adoption whenever it can be brought to a vote the Finance Committee leaders do not see how this compromise can be rejected if it becomes necessary to offer it. As already stated, the Senate has postponed until June 18 the consideration of the pending income tax amendment.

W. L. C.

The capital stock of the Illinois Malleable Iron Company, Chicago, has been raised from \$457,900 to \$1,500,000 by the conversion of accumulated surplus into capital stock. The plant has steadily grown until the old site has been fully occupied with buildings, and the first unit of what will eventually be a duplicate plant was recently completed on a new site of five acres adjoining the old plant on the west side. The purpose is to add new buildings from time to time as circumstances require. A new electric plant for light and power service is now being installed.

The Fawcett Machine Company, Pittsburgh, manufacturer of cut gears and pinions, is operating its plant double turn and reports a large increase in orders during the month.

A Newton 6-Ft. High Power Radial Drill.

The new 6-ft. radial drilling machine shown in Fig. 1 has been developed by the Newton Machine Tool Works, Inc., Philadelphia, Pa., after gathering data during the past two years from a number of prominent manufacturers concerning their requirements, and is believed to have a capacity greatly in excess of that of the best of modern high speed drills. The machine is being exhibited at the Master Mechanics' and Master Carbuilders' convention at Atlantic City, driving drills made by the Celfor Tool Company, Chicago, Ill.

The machine is of especially heavy construction, and all gears are either steel or bronze. The upright on which the arm saddle is fitted has a front bearing 15 in. wide and the saddle has square lock bearings with overlapping gibs. Reversing power elevation is provided for the arm through tumbler gears operated by a lever shown in Fig. 2. The elevating screw has bearings at both top and bottom, so that the screw is held in tension when the drill is being fed to the work, which prevents any buckling that might occur with only a top bearing. The trunnion is of substantial proportion, and is fitted with caged rollers in the cylindrical bearings and roller bearings on the faces. The spindle saddle is fitted to the arm with square lock gibbed bearings, and all adjustments are made by taper brass shoes.

The drive is through horizontal and vertical shafts by steel and bronze bevel gears to a double train of clutched bevel gears, transmitting motion to the vertical back geared shaft which carries spur gears meshing with the sleeve spur gears driving the spindle. The clutch engaging the high and low gears slides on a quill 26½ in. in diameter, driving the spindle by means of a key, engaging with a double spindle spline. The hand elevation to the spindle is obtained by an angular shaft operating a spiral gear engaging a rack, and a hand wheel is provided for engaging the friction clutch to the feed, which is taken directly from the spindle by spiral gears and transmitted through the feed box. In the latter are mounted three gears engaged by a clutch pin lever giving the changes

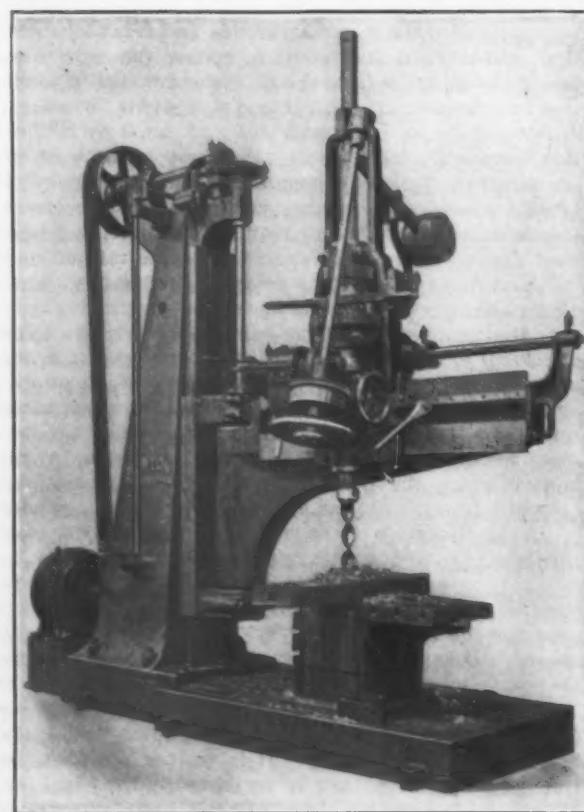


Fig. 1.—The New High Power 6-Ft. Radial Drill Built by the Newton Machine Tool Works.

of feed. The horizontal adjustment of the spindle on the rail is also obtained by a hand wheel. Means are provided for clamping the saddle in place while the drill is in operation.

The spindle feeds are 0.0156, 0.025 and 0.037 in. per revolution of the spindle. The spindle speeds with the

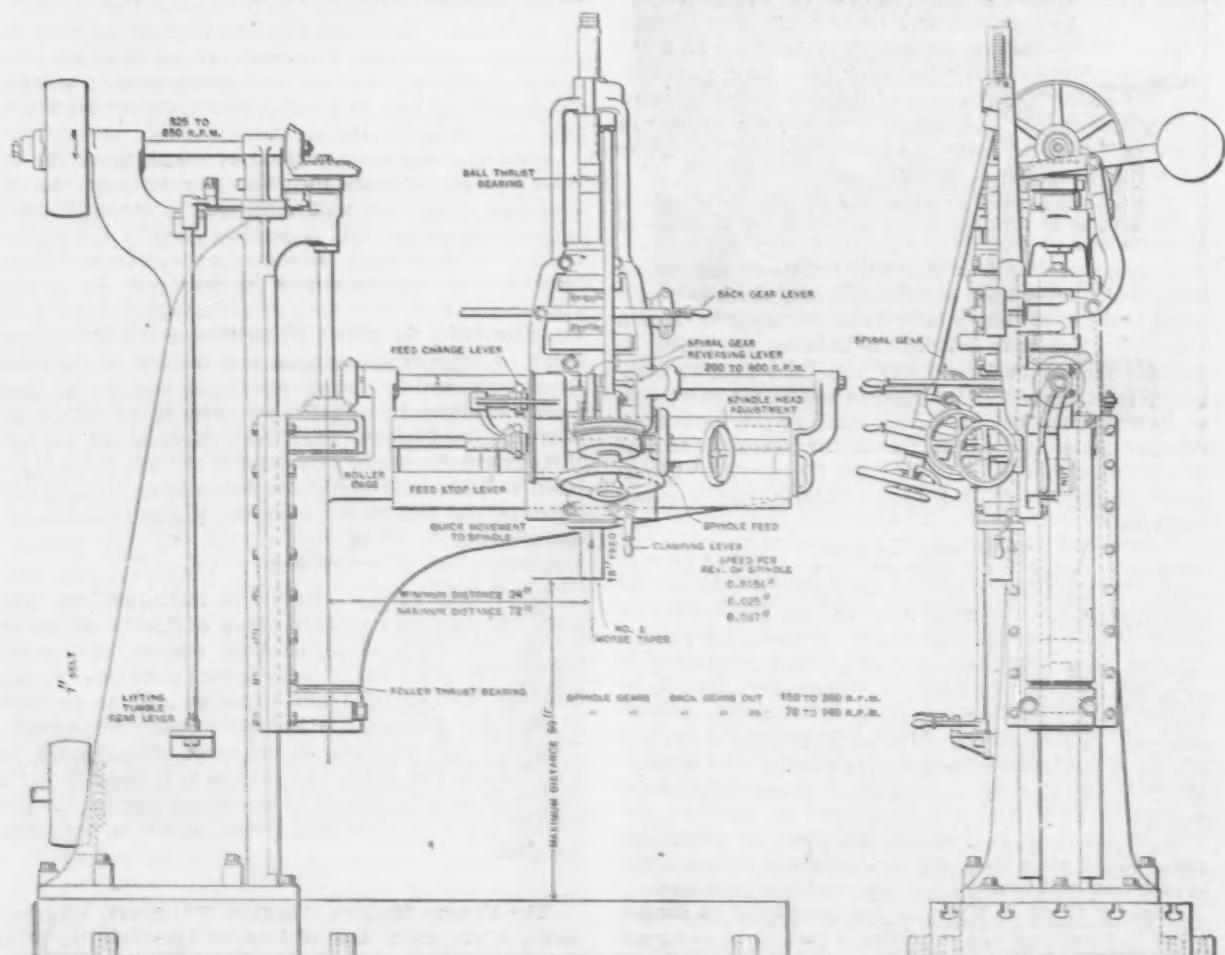


Fig. 2.—Side and End Elevations of the Newton 6-Ft. Radial Drill.

back gears in are 70 to 149 rev. per min., and with the back gears out, motor driving direct from 150 to 300 rev. per min. The machine is driven by a Western Electric 15-hp. motor running at from 600 to 1200 rev. per min., which is connected with the driving pulley by a 7-in. belt. The diameter of the spindle is 4 in., the length of feed 18 in., the maximum distance from the center of the trunnion to the center of the spindle 24 in., the maximum distance from the end of the spindle to the top of the base 89 in., and the base plate is 11½ ft. long by 48 in wide and has four T-slots for clamping the work. The machine weighs 2000 lb.

During a test in the company's works a 3-in. Celfor drill, running at 160 rev. per min., was fed into the work at the rate of 3 in. per minute, and smaller drills in proportion. Fig. 1 shows the machine with the 3-in. Celfor drill in place and shows the size of some of the chips removed. The Steptoe Tool Company intends to make tests on this machine at the Atlantic City convention to determine the feeds and speeds which it is possible to obtain with its drills, and the Western Electric Company will take instrument readings to learn what power is required under different conditions.

A New Steptoe Shaper.

When they are to be installed on shipboard, machine tools with their means for driving have to be made as compact as possible. Fig. 1 shows a 16-in. shaper recently furnished for the battleship Delaware by the John Steptoe Shaper Company, Cincinnati, Ohio, on which the motor is mounted on a stand at the base of the machine, so that it is very close to the column and comes within

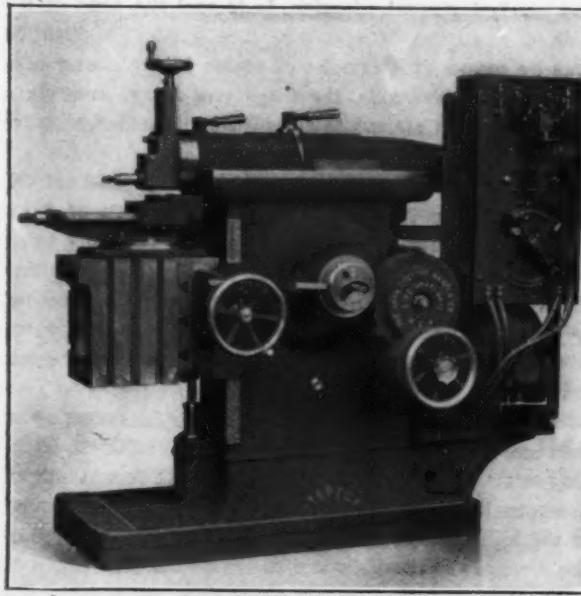


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the space which must be allowed for the return stroke of the ram. The placing of the motor also has the advantage that it avoids practically entirely the vibration which is likely to be imparted to a direct driven tool when the motor is mounted too high, and frequently results in marks on the work. The controller is placed on top of the motor within reach of the operator without changing his position beside the work, and enables him to change speeds when necessary. The motor is of General Electric Company's make and has a speed variation of 2 to 1.

The most important new feature of the machine is the self-adjusting feed rod, of which details are given in Fig. 2 showing the mechanism in various positions. The table can be raised or lowered without requiring readjustment of the feed rod which adjusts itself to any position of the cross rail automatically. It also eliminates chance of breaking a tool or the machine due to the

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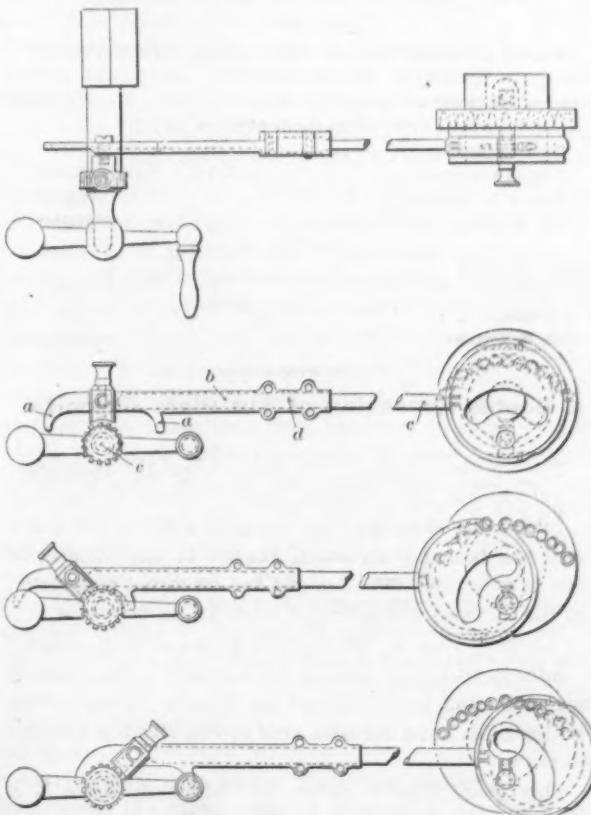


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The Iron & Steel Products Company.

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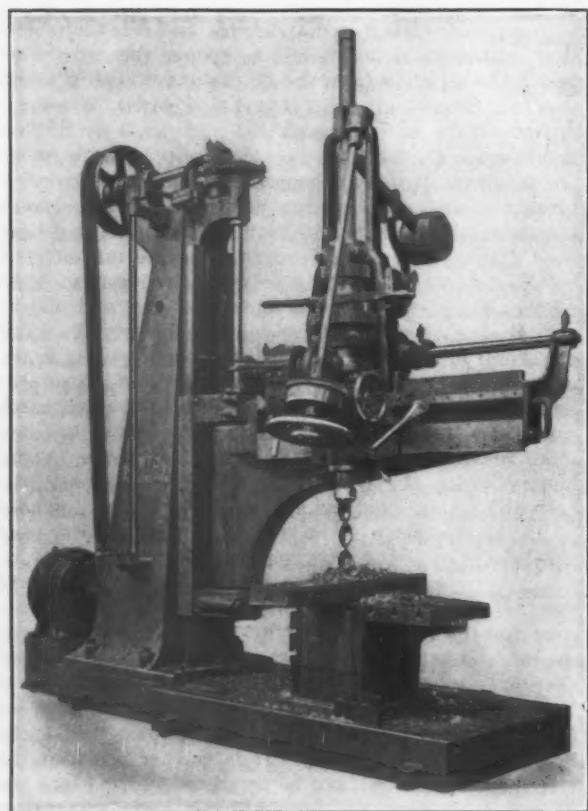


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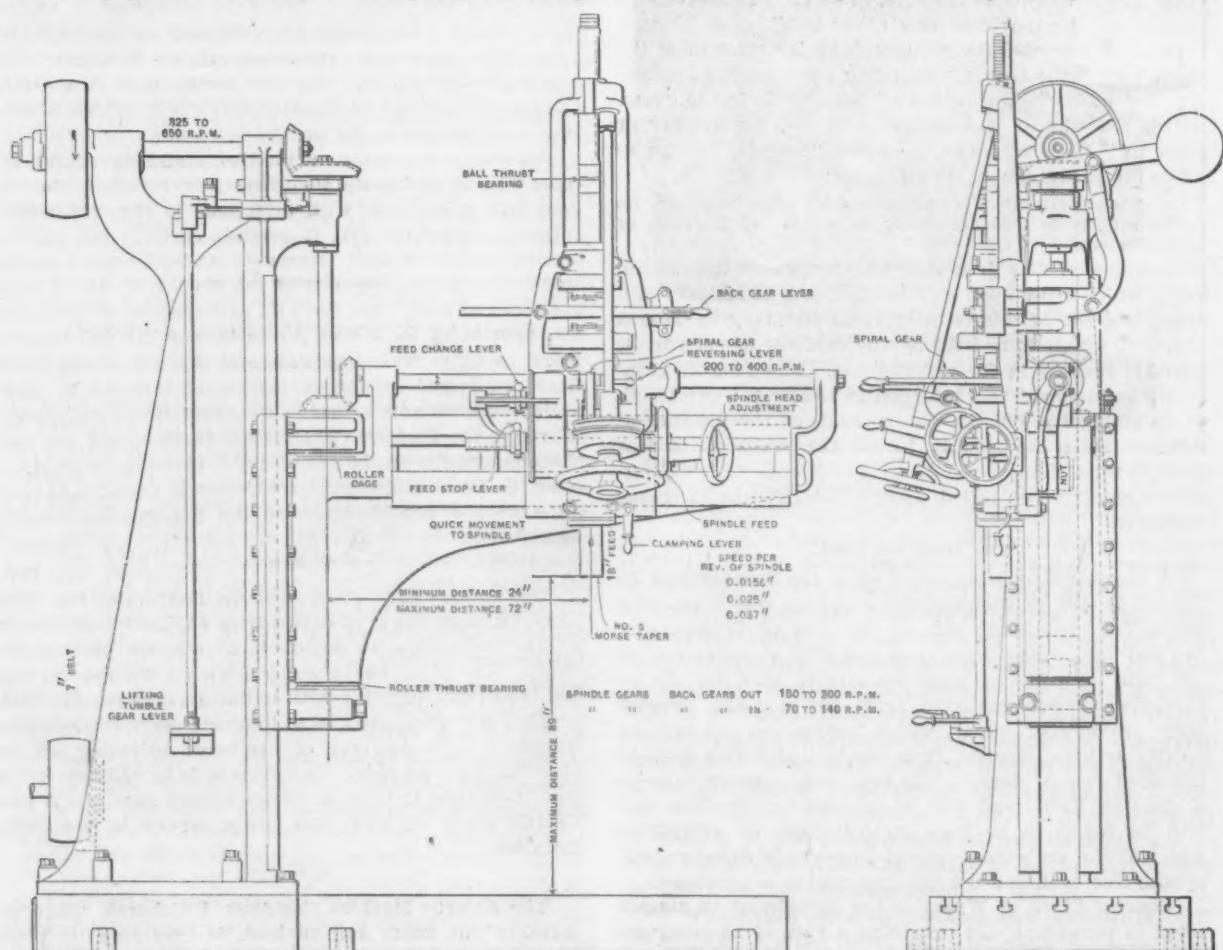


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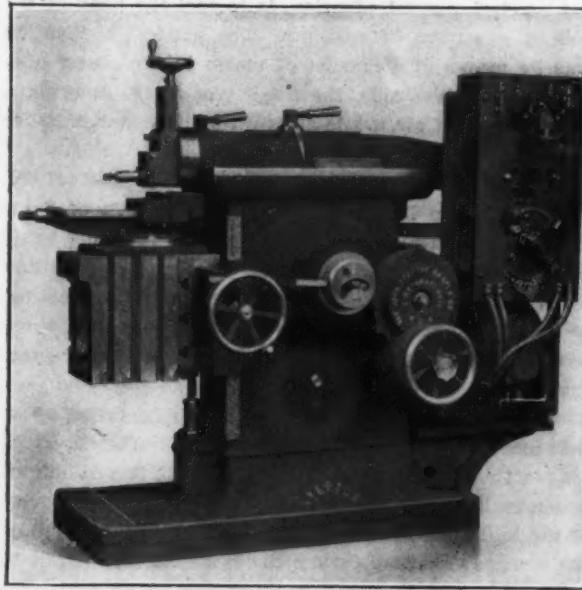


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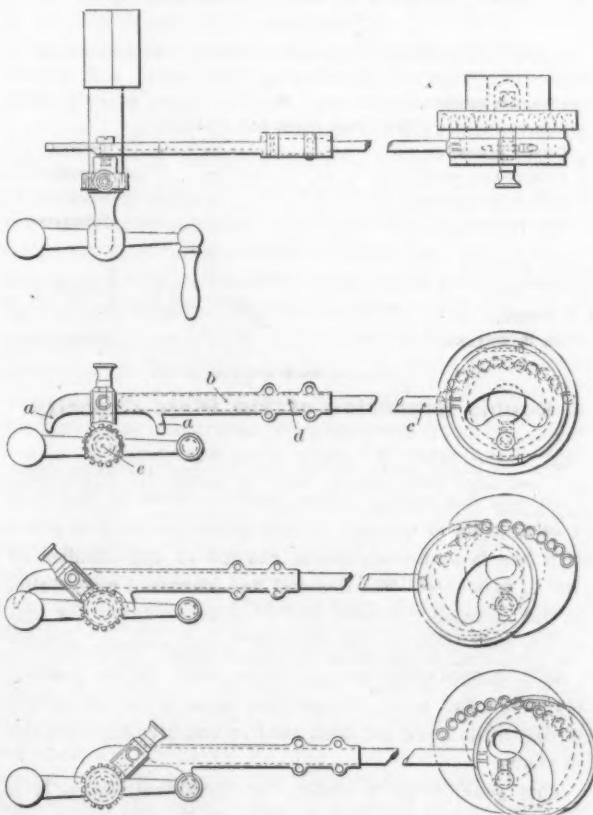


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THE IRON AGE

Established in 1855.

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GEO. W. COPE,	- - - - -	SECRETARY
CHARLES KIRCHHOFF	- - - - -	{ EDITOR.
GEO. W. COPE,	- - - - -	
A. I. FINDLEY,	- - - - -	
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.

A Double Expansion of Tin Plate Capacity.

The tin plate trade, which has pursued the even tenor of its way for several years, bears promise of reaching an interesting situation. In the past four or five years there has been no important change in the number of mills in existence. The demand has increased materially, but the increase has been met more by an increased output per mill than by an increase in the average number of mills in operation, leaving the industry in the position that while the total tonnage has greatly increased the existing mills have not been able to run steadily through the year.

This year, from a variety of influences, there is a spurt in new erection of tin mills. Early in the year the Carnahan Tin Plate & Sheet Company added a single mill to its plant. Shortly afterward the Standard Tin Plate Company began adding four mills to its plant. Then the Phillips Sheet & Tin Plate Company decided to build an additional plant containing eight mills, and the McKeesport Tin Plate Company decided to add 10 mills to its present plant. These all comprised extensions to existing capacity, while the Jones & Laughlin Steel Company is understood to have decided to embark in tin plate manufacture with a plant which will ultimately comprise 30 mills. A new interest is building a plant at Niles, Ohio, to contain both tin and sheet mills, although it may not coat any of the product. Outside of this last named the new capacity involves more than 50 mills.

In the past few years, and particularly of late, the output per mill has materially increased. Until 1899 the output limit in union tin mills was 5250 lb. per turn on 30 gauge; in 1899 this was increased to 5750 lb. and in 1903 to 6250 lb., the limit being entirely abolished in 1905.

An approximate idea of the gain in output in recent years can be obtained by comparing the average number of mills in operation with the total tin plate output, as officially reported. The method is not exact, as the number of mills operated each week cannot be reported with absolute precision, and there is some product which is not actually tinned. Fairly close figures, however, are given in the table below, which aims to include only tin mills the product of which was tinned, although a portion of the product of some of these mills was not actually tinned, the proportion probably remaining fairly constant in the different years. The average for each year is the average of weekly compilations of the number of mills operated. The figures of output are the official returns of the American Iron and Steel Association,

except in 1904, for which year the census report is used. The average output per turn is computed by allowing 16 turns to the week and 52 weeks to the year.

Average Tin Mills Operated and Output.—Pounds.

	Mills.	Total output.	Output per mill.
1904.....	231	1,026,384,851	5,340
1905.....	229	1,105,440,000	5,802
1906.....	264	1,293,740,000	5,890
1907.....	229	1,153,097,000	6,052
1908.....	211	1,203,075,000	6,853

If allowance could be made for the portion of material not actually tinned, but produced by mills the product of which customarily is tinned, and further allowance were made for turns occasionally lost, the average output per mill, running full, would be still larger. The table shows an increase of 28 per cent. in the average output in only four years.

The output in 1908 by no means represents the maximum likely to be reached, as the tin plate industry is making strides at the present time. The old Welsh practice, in vogue at the time the manufacture of tin plate was generally introduced in the United States, used 16 or 18 in. rolls. The early American mills used 20 or 22 in. rolls, and by 1894 the 24-in. roll had become standard. A few years later 26-in. rolls were introduced and lately 28-in. rolls have been used in some cases. A few years ago water was introduced to cool the necks of the rolls, and properly applied the cooling influence tends to preserve the roll rather than encourage breakage, as was feared in some quarters at the start.

The most recent improvement, and one which has not yet reached general adoption, is to cool the body of the roll by a stream of cold air. The earliest application was by means of a fine jet of steam in the center of a funnel under the rolls, the fine jet of steam carrying a large stream of air, while afterwards air under pressure was introduced.

With such equipment as much as 18,000 lb. of 30-gauge tin plate has been produced in a turn of 8 hr. The second heating was eliminated, the roughing being accomplished so rapidly that the steel was in condition for a second rolling after matching, without reheating, so that 30-gauge tin plate was produced with only three heatings instead of the four involved in the usual practice.

When in 1908 an average of 211 mills operating at an average of 6853 lb. per turn produced 537,087 gross tons of tin plate, within 40,000 tons of the record output, made in 1906, it is obvious that the potential capacity of the mills built and building will be quite in excess of the demand, especially when the large outputs shown to be feasible, and that only a short time ago would have been considered impossible, become more general.

The leading interest operated a maximum of 213 tin mills in 1908; its maximum number thus far operated this year is 202. Its total operative force is usually given at 242 mills, but the annual report of the United States Steel Corporation lists the Falcon plant at Niles, containing six mills, and the plant is still in position, so that the total is really 248 mills. Excluding certain mills operated tin plate style, but the product of which is not tinned, the independents have a total of 83 mills, which will be increased to about 135 mills when the present new construction programme is carried out, making a grand total of 383 mills.

With an average output per turn of 6853 lb. in 1908 and a record for a turn of something like 18,000 lb. it is obvious that average outputs in the future are likely to be increased very largely. Assuming only 7500 lb., however, as attainable in the near future, say next year,

the weekly output per mill, at 16 turns, would be 120,000 lb., or, at 48 weeks in the year, 2370 gross tons per year. The actual tin plate production has been as follows:

	Gross tons.		Gross tons.
1891.....	999	1906.....	577,562
1895.....	113,666	1907.....	514,775
1900.....	302,665	1908.....	537,087
1905.....	493,500		

Thus at the prospective output per mill it would require only 225 mills, running 48 weeks in the year, to make the maximum tonnage thus far recorded, although this compares with 331 mills in existence and a prospective total of 383 mills.

It may be noted that practically all the new tin mill erection is by nonunion interests, and that was doubtless one of the influences which decided the American Sheet & Tin Plate Company to adopt the open shop policy for all its mills. Labor leaders have expressed the opinion that should the open shop policy become universal the tin mills would ultimately run as fully during the week as do the steel mills, which would give them 18 instead of 16 turns, increasing the output apparently by 12½ per cent.

It may be urged that tin mills cannot be expected to operate 48 weeks in the year on account of the demand for canning plates being concentrated in but a few months in the year. It is quite possible to store tin plate; but, be that as it may, it remains the fact that the record tonnage was made in 1906, two years ago, and did not unduly test the capacity of the existing mills, also that since then outputs per mill have increased and bid fair to increase still more, while the number of mills is being increased by 18 per cent. of the maximum number operated at any one time last year.

Wage Restorations.

It is safe to say there have been no such expeditious restorations of wages in the iron trade of the United States as those of which announcement was made recently. Practically all the steel companies apart from the United States Steel Corporation reduced wages 10 per cent., making the new rates effective April 1, and in some cases similar reductions were made in all salaries, from president down. A number of blast furnace companies in the Central West and in central and eastern Pennsylvania made reductions also, though for the most part blast furnace wages were readjusted in 1908. The reductions made in that year were due to the great decline in the price of pig iron which had taken place in 1907, and which continued, though to a less extent, in 1908. The maintenance for the most part of prosperity prices on finished steel made steel works employees secure against any general reduction of wages last year, as is well known. But when the open market was declared by the Steel Corporation there seemed to the minds of most of the leaders in the steel trade no escape from a recasting of labor costs in every department of the industry.

This view was strengthened by the failure of the reductions in steel prices to stimulate business greatly in the early weeks of the open market. There entered into the account also the belief that, due to a combination of causes which were generally discussed in connection with the panic, the practice of economy in many directions, not only in the conduct of manufacturing and commercial business, but in the personal expenditures of large numbers of people connected with such enterprises, must precede a recovery of health and soundness. The well-known fact that many people were but little affected in income

by the depression of the preceding 18 months was regarded in some quarters as an indication of the road still to be traveled before the real turn for the better came. Elsewhere it was viewed as proof that the country was not passing through a real depression and that the return to prosperity would not be long delayed.

A reason commonly assigned for the restorations of steel works wages announced in the past few weeks, effective June 1 and July 1, is that no reduction was made by the United States Steel Corporation. If that were true it would still remain to find the reasons for changing an intention generally ascribed to the Steel Corporation three months ago. It is easy to see that, as it has drawn criticism because of its size and the extent of its influence, its directors would welcome the opportunity to disarm hostility. The effect upon pending tariff legislation may have been taken into account. Naturally it will be said that the obvious reason is the only one that need be given—the marked improvement in orders for iron and steel and the certainty that 1909 will be a better year for the iron trade than was indicated by the developments of March and early April. Without doubt much weight is to be given to the consideration that the cost of living is persistently high and that, after the short working time and short pay of 1908, steel workers were ill prepared to stand a general reduction in wage rates. Had the sliding scale principle been generally in force in the steel works of the country wages would now be at the lowest rate since 1904, and such low rates would continue for most of the remaining months of the year. Whatever improvement may come in market prices it can affect but a comparatively small proportion of material rolled in 1909. In all the acclaim over tonnage in recent weeks the narrow margin of profit to the mills has somehow counted for little.

Broadly the course of wages in the iron industry in 1909 reflects the judgment of its leaders that the tendency of prices will be toward a higher level. For better or for worse the movement for more economical production and a scaling of raw material and labor costs to a "world market" basis has been arrested.

The absorption of local electric power companies by corporations controlling large hydro-electric plants is becoming common. In many cities and large towns the same company operates the gas and electric lighting systems, and the purchaser must take the entire property. In such instances the tendency should be to encourage the public to use electricity in place of gas, providing the former at almost equal cost where water power is large and is economically converted into electricity.

CORRESPONDENCE.

Municipal Ownership of Public Utilities.

To the Editor: In looking over your issue of June 10 the writer finds on page 1855 an article headed "Municipal Ownership in Lessening Favor." For more than a year past various reports have appeared against the ownership of municipal electric light, gas and water plants, plainly, in almost every instance, the work of those whose ownership of or interest in some public service corporation is at stake.

When it comes to the success of any municipal corporation, there is no question at all, where cities are properly governed and administered, that the city can own its own public service corporations and operate them at practically as little cost as privately owned public service corporations are operated. Taking the city of Owensboro, I am quite familiar with the workings of municipal ownership here, having served on the Council

and on its Water, Electric Light, Sprinkling and Scavenger committees. Before the city undertook to build its own electric light plant the light service could be had only during the hours of from about 4 p.m. until the following morning. The price paid for current was at the rate of 15 cents down to 12 cents per kilowatt, with very poor service. The electric light plant and the gas works were owned by one and the same company. The city built its own plant and is now selling current for lighting purposes on the basis of 5 cents per kilowatt, and gives service 24 hr. a day. It is selling current for power at 3 cents per kilowatt, and is making a good percentage of profit on the cost of the plant and its equipment. The ownership of the electric light plant has reduced the cost of gas from a rate of \$1.50 for illuminating gas and \$1 for fuel gas to the flat rate of \$1 for gas for any purpose, so that the ownership of the electric light plant here, after furnishing current to citizens for less than half what was charged by the old company, has reduced the cost of illuminating gas 50 cents per 1000 ft., making an indirect saving to the citizens.

Going along to the water plant, the citizens were served by a privately owned public service corporation, which gave us Ohio River water, mud, sand, grit and diluted sewage thrown in, for which we paid from two to four times as much as we pay for pure wholesome deep well water now. The city owns its own water plant and has laid many miles of pipe in territory in which the old company refused to lay its pipes. When a portion of the public was served by the old company after the city voted its bonds the company proceeded to improve its water supply by using filter strainers, so that we are now supplied with two water works. Naturally, the price of the water is very cheap. Up to this time the city's water plant has not paid any direct revenue on the cost of investment. It has, however, paid well in the decreased cost of water to the consumer and it has reduced the amount of sickness, particularly typhoid fever, to a minimum. We have no more typhoid epidemics here. We have covered three times the territory that was covered by the old company, and have given three times as many of the citizens good, pure, wholesome water; we have benefited the taxpayers in that way. More than that, we now have a system of fire protection spread over three times the territory formerly covered, and having large pumps and the best machinery manufactured the water supply for fire fighting purposes is absolutely reliable. The citizens here are more than pleased with the result of the water plant.

We next come to the street cleaning, street sprinkling and scavenger service. Before the city purchased its teams, wagons, sprinklers, &c., it had its ashes and garbage removed and its streets cleaned on the contract system. Under such system the owner of the teams and the contractor takes the work in order to make as much money out of it as possible; but so far as the public health is concerned he cares nothing. He does no more than those in charge of city affairs compel him to do. Under our present system the streets are sprinkled for about one-third of the cost under the contract, and we cover about three times as much territory at practically the same cost. Since the city owns its own water it does not mind furnishing plenty for street sprinkling and street flushing purposes.

Referring to the scavenger department—the removal of ashes, garbage and other accumulations—before the ownership of this department and its operation by the city there was a constant stream of complaints from the citizens. The garbage was not removed promptly and the ashes were allowed to accumulate, until in some instances there would be an entire wagon load on the premises. We do not do the scavenger and street cleaning work as cheaply as we did under the contract system, but we do it effectively. The superintendent of the scavenger department has police authority and can require the citizens to keep the premises clean and keep the garbage in proper vessels, so that the work is done very much better on the whole.

City ownership of public service necessities, such as the supply of water, electric current, the cleaning of the streets and the removal of garbage and ashes, has proved

most satisfactory in this city. The citizens here would not think for a moment of ever operating under private ownership of these utilities.

In conclusion I wish to state that with proper safeguards around the management of these public service necessities, no city need ever regret embarking on the ownership of such great necessities to its citizens as ample supply of water and ample supply of electric current for public and private lighting, and a scavenger department not merely concerned for the dollars it can make out of the removal of garbage, no matter how many citizens suffer or die because of inefficient service. Cities can have their municipal affairs administered as honestly as can a private corporation if they will use the same safeguards that private corporations employ. While it is a fact that occasionally city officials go wrong and accept bribes at the expense of their communities, it is also true that the servants of privately owned public service corporations often go wrong, too.

J. E. GUNTHER.

OWENSBORO, KY., June 11, 1909.

The American Sheet & Tin Plate Company's Tin Plate Scales.

The notice to its employees of its intention to hereafter run its tin plate plants on an "open shop" basis, together with the scale of wages that will be paid in these plants beginning July 1, as recently posted by the American Sheet & Tin Plate Company, is as follows:

After careful consideration of the interests of both the company and its employees, the American Sheet & Tin Plate Company has decided that all its plants after June 30, 1909, will be operated as "open" plants. The scale of wages in the hot mills department commencing July 1, 1909, and until further notice, will be as follows for gross ton weights:

Gauge.	Roller.	Doubler.	Heater.	Catcher.	Screw boy.	Shear- man.	Total.
8-11	\$1.20	\$0.73	\$0.74	\$0.44	\$0.52	\$0.31	\$4.03
12-13	1.35	.75	.77	.46	.52	.31	4.16
14-15	1.56	.88	.93	.54	.52	.31	4.74
16-17	2.08	1.19	1.14	.71	.52	.31	5.95
18-20	2.33	1.33	1.28	.79	.52	.31	6.56
21-24	2.80	1.65	1.52	.88	.62	.37	7.84
25-26	2.97	1.73	1.67	.94	.69	.38	8.38
27-28	3.00	1.82	1.80	.94	.70	.40	8.66
29-30	3.14	2.07	2.02	1.07	.70	.39	9.39
31	3.22	2.19	2.15	1.09	.71	.40	9.76
32	3.36	2.30	2.27	1.14	.72	.41	10.20
33	3.58	2.42	2.33	1.22	.74	.44	10.73
34	3.98	2.59	2.55	1.34	.77	.46	11.69
35	4.16	2.72	2.71	1.41	.80	.47	12.27
36	4.44	2.80	2.81	1.51	.80	.49	12.85
37	4.51	2.82	2.86	1.52	.80	.52	13.03
38	4.56	2.89	2.90	1.55	.80	.53	13.23
39	5.23	3.46	3.39	1.77	.88	.59	15.32
40	5.52	3.91	3.96	1.86	.88	.61	16.74

10 per cent. extra on packs containing over 14½ sq. ft.

Nearly two-thirds of the tin plate plants operated by the American Sheet & Tin Plate Company have been on a nonunion basis for some time, and last year the company signed the Amalgamated scale for plants containing only 147 hot mills. The largest of these are the Shenango Works at New Castle, Pa., containing 30 hot mills, and the New Castle Works, also at New Castle, containing 24 hot tin mills. While nothing definite is known, the impression is strong that most of the men will continue at work on an "open shop" basis and at the scale of wages printed above. There may be strikes at some of the smaller plants, but it is believed the men at the Shenango and New Castle Works will continue at work.

This week No. 3 furnace of the National Tube Company at McKeesport, Pa., which has been idle for some months, will be put in blast, making all four furnaces at this plant in operation, with a daily output of about 1800 tons of Bessemer iron, all of which is used in the Bessemer steel works at McKeesport. The National Tube Company owns 11 blast furnaces, 10 of which will be in operation this week, the idle stack being one furnace at Lorain, Ohio, which is being rebuilt and improved.

We are advised that the report that the Baltimore and Ohio Railroad Company would soon be in the market for 10,000 freight cars and 100 passenger cars is untrue.

The Cleveland Industrial Exposition.

The industrial exposition at Cleveland, Ohio, which opened June 7 and will continue until June 19, has attracted a great deal of attention all over the country. Although intended principally as an exhibit for residents of the city and immediately surrounding territory, it has brought many visitors from distant points. The attendance and interest have quite exceeded the expectations of the promoters. The exposition was planned by the Cleveland Chamber of Commerce and its management was placed in the hands of a committee of that organization, of which F. F. Prentiss, president of the Cleveland Twist Drill Company, is chairman. There was no intention that it should be a money making proposition in any way, but the purpose was to arouse an interest in home industries and to make the residents of the city better acquainted with Cleveland manufactured products. Similar enterprises have been carried on in other cities, but not on nearly as large a scale.

The exposition is being held in the Central Armory and a large temporary building adjoining it, connected by an elevated passageway. The two buildings gave a combined floor area of over 114,000 sq. ft., and the demand for space was so large that many exhibitors would have been glad to have considerably more room than could be allotted to them. Exhibits were strictly limited to the products of the city and county. There are 283 exhibitors in all. Because of Cleveland's great diversity of manufactures the exhibits have a wide range, although the metal working industry predominates, this section including machinery of almost every description, hardware, small tools, stoves and ranges and numerous other products. Manufacturers went to much expense in preparations and a large share of the exhibits would do credit to a national exposition. In many cases machinery is shown in operation and the process of manufacture is demonstrated. The following are the principal exhibits in metal working lines:

National Acme Mfg. Company: Exhibited the new Acme automatic machine, No. 515, with two gear cutters attached, gear driven, and making screws for gas pliers at the rate of three a minute. This company presented to those interested passes to visit its plant.

Wellman-Seaver-Morgan Company: A model of the Wellman open hearth charging machine in operation, samples of steel castings, and photographs of various forms of ore handling and other machinery equipment made by this company.

National Screw & Tack Company: A large display of screws, bolts and other products, and also its original exhibit at the Philadelphia Centennial in 1876, which it presented as the first display of steel wood screws in the United States.

Brown Hoisting Machinery Company: Over 150 photographs of Brown ore handling plants, locomotive cranes, bins, buckets, blast furnace tops, &c. An exhibit was made of samples of trolleys, ferro-inclave, and a new machine, a rotary cleaner, to be attached to any light rotary motor for cleaning rust and scale from structural steel.

Ohio Ceramic Engineering Company: McKelvey concrete mixer in operation, and concrete buckets.

Cleveland Punch & Shear Works Company: Exhibited in operation a motor driven, solid frame, semi-steel punch and shearing machine with interchangeable attachments for punching and for plate, angle and bar shearing. Also a line of small tools, including punches and dies, rivet sets and pistons for pneumatic hammers, chisel blanks for pneumatic chipping hammers, drift pins, punch holders and coupling nuts.

Cleveland Hardware Company: A display of wagon, automobile and carriage hardware.

Warner & Swasey Company: A No. 2 hollow hexagon turret lathe, a 16-in. head forming lathe, a 9-in. equatorial telescope, a 3-in. universal transit and other appliances.

Peck, Stow & Wilcox Company: An extensive exhibit of builders' hardware and hand tools, hand punches and shears, scale beams, pruning shears, &c.

W. S. Tyler Company: Exhibit of ornamental iron and bronze work, including solid bronze elevator inclosure for the Hudson County court house at Jersey City; entrance doors and marquise for residence of Mrs. John Hay, Cleveland; solid bronze gates for the Cuyahoga County court house, Cleveland; section of main stair railing for the Carnegie Library, Pittsburgh; shield to go over entrance to vault of Carnegie Safe Deposit Company, New York. Also exhibit of wire cloth, mining screens, fourdrinier wires, &c.

Cleveland Twist Drill Company: A fine model of the company's plant and a line of twist drills, reamers and other products. A neat twist drill watch charm was given as a souvenir.

Standard Tool Company: A complete line of products, including twist drills ranging from 0.005 in., the smallest drill ever made, to 5 in. in diameter. A new hot forge twisted drill

was shown. The company distributed as souvenirs one of its smallest drills and two slightly larger in size.

Osborn Mfg. Company: Osborn rocker drop draft molding machine, the Sivquick foundry riddle, brushes and a general line of foundry supplies.

Taylor & Boggis Foundry Company: A fine line of builders' hardware, samples of sand blast castings, oil and gas stoves, hot plates, molding machine, sand sifter, lamp bases.

Kirk-Latty Mfg. Company: Juvenile automobiles, express wagons, velocipedes and bolts.

Loew Mfg. Company: No. O4 pipe cutting and threading machine, motor driven, and No. O pipe cutting and threading machine, belt driven; also 25-hp. marine engine, a new product of the company.

Standard Welding Company: Demonstrated an electric welding machine. Exhibits of electric welding bicycle parts and rims, automobile rims, various special shaped tubes and general job welding.

Van Dorn Iron Works Company: Steel office furniture.

Cyclone Woven Wire Fence Company: Ornamental fences, waste paper consumers, tree and flower bed guards.

John S. Oram: Stave, heading and barrel machinery.

National Malleable Castings Company: Malleable castings.

Bardons & Oliver: A new automatic air chuck attached to a No. 3 turret lathe in operation, a No. 4½ screw machine, No. 2 turret lathe with chasing attachment with set over, and a 14-in. countershaft.

American Steel & Wire Company: Large display of wire, springs, fencing and shafting.

Chisholm & Moore Mfg. Company: A complete line of Cyclone hoists, including a new 30-ton high speed hoist, ammunition and other hoists.

Westinghouse Electric & Mfg. Company: Standard line of alternating and direct current motors, mill drive motors, magnetic switch control, small industrial motors, fans and electric sadirons.

Cleveland Frog & Crossing Company: Frogs, crossings and switches.

Avery Stamping Company: Heavy metal stampings, cooking utensils, steel shovels, cream separator bowls, gas tanks, boiler heads, brake drums.

Glauber Brass Mfg. Company: Glauber nonhammering fuller work, self-draining, self-venting valve, brass fittings for bathrooms, and complete line of products from ½-in. cock to the largest size of corporation and inverted key cocks.

Atlas Car & Mfg. Company: Industrial cars.

Riesler & Thesmacher Company: Metal spinning and fire-proof metal window frames and doors and factory windows.

Forest City Steel & Iron Company: Hand forge in operation for heating rivets; samples of steel work; photographs of erected steel work.

Eberhard Mfg. Company: Harness hardware.

Cleveland Stone Company: Grindstones, whetstones, curbing and flagging. Photographs showing gray Canyon sandstone used in structural work.

Cleveland Galvanizing Works Company: Pattern shop and foundry supplies, pattern letters, name plates, lightning rods, vanes, pump chain.

National Iron & Wire Company: "National" steel joist hanger, a model of structural work and photographs of structures erected by this company.

Strong, Carlisle & Hammond Company: Frankfort gas furnaces in operation and the Strong steam trap.

C. O. Bartlett & Snow Company: Model of the Greene self-dumping car haul in operation.

Hill Clutch Company: Smith type of friction clutch and a complete line of transmission machinery.

Reliance Electric & Engineering Company: Lincoln variable and constant speed motors.

Lucas Machine Tool Company: Lucas "Precision" boring, drilling and milling machines.

Cleveland Foundry Company: Perfection cook stoves and oil heating stoves.

Globe Machine & Stamping Company: Steel tool and battery boxes, tumbling barrels, stamping and sherardizing.

Foote-Burt Company: Nos. 23 and 24 high duty drills and No. 2 independent feed four-spindle drill.

Lincoln Electric Company: Lincoln motors in operation, generators and lifting magnet; one motor operated under water.

Bruce-Macbeth Engine Company: Vertical four-cylinder gas engine in operation.

Upson Nut Company: Bolts, nuts, rivets and pig iron.

Cleveland Planer Works Company: "Cleveland" open side planer.

J. M. & L. A. Osborn Company: Various products of its plant, including garbage cans, wash boilers, ash cans, eave trough and conductor pipe.

Ohio Blower Company: "Swartout" ventilators, exhaust heads and oil separators.

V. D. Anderson Company: Anderson steam trap and oil filter.

Diebold-Peters Company: Leber low pressure gas regulator.

Wyman & Gordon Company: Drop forgings.

Cleveland Fillet Company: Wood and leather fillets, pattern letters and patternmakers' supplies.

Cleveland Wire Spring Company: Steel shop boxes, piling boxes, steel barrels, springs.

Sanitary Company: Paragon plumbers', gas, steam and water goods.

Cleveland Flushometer Company: Cleveland flushometer in operation.

Ideal Sad Iron Mfg. Company: Ideal self-heating sadiron.

Lamson & Sessions Company: Bolts, nuts, rivets and wrenches.
 Ferry Cap & Set Screw Company: Steel cap and set screws.
 Allyn Brass Foundry Company: Brass, bronze and aluminum castings.
 Cleveland Furnace Company: Pig iron and slag.
 J. D. Smith Foundry Supply Company: Foundry machinery and supplies.
 Johnston & Jennings Company: Power hammer, gas valves, cast washers, &c.
 Acme Brass Works: Plumbers' brass goods.
 Superior Foundry Company: Piano plates and other castings.
 Cleveland Stamping & Tool Company: Solid steel seamless hollow ware and lava and volcanic enamel ware.
 Cleveland Co-operative Stove Company: Stoves and ranges.
 Schill-Rehburg Company: Gas furnace.
 Standard Lighting Company: New process gas ranges.
 Dangler Stove Company: Gas and gasoline ranges, oil stoves and gas heaters.
 Champion Steel Range Company: Champion interchangeable range and Champion gas water heater and auxiliary cooker.
 Cleveland City Forge & Iron Company: Forgings and photographs.
 B. P. Forbes: Fruit jar wrenches and Glasbrite.
 Auer Register Company: Registers for heating and ventilating.
 Born Steel Range Company: Steel ranges and other products.
 Mannen & Esterly Company: Hot air gas furnaces, clothes dryer, &c.

New Publications.

Nicholson on Factory Organization and Costs.—By J. Lee Nicholson. Pages, 410, 8½ x 11 in., ¾ morocco binding. Illustrations, 447. Published by the Kohl Technical Publishing Company, New York, Price, \$12.50.

The author, who is a certified public accountant and factory cost specialist, has produced a monumental volume. It is intended as a handbook for manufacturers interested in modern methods of organization and systems, as a work of reference for accountants and costs specialists, and as a text book for students. The main purpose, as announced in the preface, was to outline and explain all the best known methods of factory organization that relate to cost finding, in a way that would enable the manufacturer to compare them with the methods in use in his own plant. Such an examination of the book as has been possible, in the effort to determine its compass and mode of treatment, indicates that the author has brought together material of great value to manufacturers, industrial managers and accountants. That it is practical may be judged from the fact that chapters 7 to 31, inclusive, are devoted to the exposition and illustration of the various forms which may be introduced in a manufacturing business. The six chapters preceding these deal in order with "Organization and Cost Finding," "Wage Systems," "Analysis of Cost Accounting," "Distribution of Indirect Expenses," "General Introduction to Forms and Systems," and "General Introduction to Designs and Explanations." The 25 chapters beginning with chapter 7 are replete with forms of all descriptions which enter into cost accounting and the other records of manufacturing establishments, 387 system forms now in use being reproduced. These include stock sheets, production orders, material requisitions, time reports, payroll and distribution sheets, production reports, statements of factory expenditures, defective work reports, drawing, pattern and equipment records, and an elaborate series of cost sheets. In chapters 32 to 39, inclusive, are given details of eight different systems based on known factory conditions. The first three of these deal with estimated cost systems, the first based on an annual verification of material, labor and indirect expenses; the second on an annual verification of departmental charges for material, labor and indirect expenses; the third on a monthly or annual verification of estimated cost of class of product, according to departmental material, labor and indirect expenses. Chapter 35 explains a system that will enable the manufacturer to obtain the cost of the general classes of product without installing a detailed system of cost finding. Chapter 36 outlines a special order system—that is, one by which the material cost and labor cost of each particular order can be ascertained and the indirect expense applied to the respective orders. Chapter 37 is de-

voted to a system in which all expenditures except material are charged against a particular machine, or group of machines of the same kind, or against a particular operation or process; chapter 38 to a system applicable to shops in which the same product is manufactured continuously and carried in stock from which customers' orders are filled, without the orders having any direct connection with the product; chapter 39 to a system based on the principles set forth in chapter 37, but designed for a more extensive business and best applied where the product is manufactured for special orders and no stock is carried. The last nine chapters treat of mechanical office appliances and are quite fully illustrated.

The one drawback to the book is its encyclopedic size and weight. The reproduction of so many forms apparently compelled the adoption of a wide page, and this in turn led to great bulk, the publishers recognizing that lines of text 6 in. long are not easily swept by the average eye unless large type is used.

The literature of factory costs and organization is voluminous enough, but it exists in hundreds of articles and society papers and in scores of books. Mr. Nicholson's great service has been the sifting of this great mass and the preparation of a new product into which his own experience has entered largely. One of his most timely and interesting chapters is that explaining the various wage systems, analyzing them and illustrating their different effects upon the employer and the employee and upon production. As illustrating the need of a general diffusion of instruction on cost finding, the statement is made that of several hundred manufacturing establishments visited by the author in not one, except where actual cost systems were installed, were indirect charges properly understood or accurately distributed over the manufactured product.

Lecons sur le Carbone (Lectures on Carbon.) By Henry Le Chatelier. Published by Dunod & Pinat and A. Hermann, Paris.

Henry Le Chatelier, at the instance of his students at the Sorbonne, has published the lectures which he has delivered for the first time during the year 1907-1908 in the course of general chemistry. He has departed in quite a radical manner from the orthodox methods at French universities. The first of the lectures shows this strikingly with its references to Henri Sainte-Claire Deville, and his appreciation of the labors and achievements of Moissan. He takes up first the physical and chemical properties of carbon, deals with natural and artificial fuels and with combustion, and discusses the capacity for absorption of gases of charcoal. The allotropic forms of carbon are alluded to. Metallic carbides, including cementite, calcium carbide, acetylene and carbورundum, form the text of another lecture. Carbonic acid, metallic carbonates and carbonic oxide furnish the occasion for the elucidation of fundamental laws and for the discussion of the application to manufacturing operations, like the function of carbonic oxide in the reduction of iron ore in the blast furnace. In a lecture on the combustion of gaseous mixtures Professor Le Chatelier introduces a discussion of the principles of the safety lamp in collieries. The six concluding lectures deal with such more general subjects like the origin of chemistry, the laws of chemical mechanics, and the study of matter. The work is a fascinating one, in its quick transitions from purely theoretical discussion to questions affecting the fundamentals of industrial operations. It possesses a charm quite its own, and will attract a far wider circle than that of the classes at the Sorbonne.

The Gas Engine. By Cecil P. Poole, editor of *Power and the Engineer*. Size, 6 x 9 in., 97 pages, illustrated, cloth binding, price \$1. Published by the Hill Publishing Company, New York.

The basis of this book was the Gas Engine Supplement prepared by the author for *Power* about a year and a half ago. It is relatively rudimentary, making no pretense of completely treating the subject, but is addressed rather to those who wish a fundamental knowledge of

the principles involved in the design, construction and operation of gas engines. In line with this object, mathematical and scientific analyses of the subject have been avoided. In short, the involved discussions of heat-energy cycles common to text books have been purposely avoided, and expect in one chapter, which can be skipped without serious loss by those not pursuing a deep study of gas engines, algebraic equations do not enter at all. To those who would become experts on the subject the book has little value, except, perhaps, as an easy introduction to the more profound works which are available. It is the mission of this book simply to give the layman an intelligible understanding of this form of prime mover. Particularly helpful to this end are the sections dealing with the principal parts, such as valves and valve gears, igniters, governors, &c., and another giving directions for the care and management of engines. It is the final chapter concerning pressure, temperature and output calculations which is the most involved, but even that is presented in so clear a manner that it may be fairly easily understood, particularly after reading the chapters preceding it.

Traitements Thermiques des Produits Métallurgiques.

Trempe, Recuit, Revenu. (Heat Treatment of Metallurgical Products.) By Leon Guillet. Published by H. Dunod et E. Pinat, Paris. Price, 27.50 francs.

Professor Guillet, who occupies the chair of metallurgy at the Conservatoire National des Arts et Métiers at Paris, has undertaken a truly monumental work, the first fruits of which are offered in the volume before us on hardening and annealing. It is a ponderous, well equipped volume of over 600 pages, and is to be followed by three others; the second, on the chemical treatment of metallurgical products embracing cementation, the manufacture of malleable castings, electroplating, welding and brazing; the third, on the mechanical treatment, including casting, forging, rolling, drop forging, cold drawing, wire drawing, &c.; and the fourth, on the description of the application of these different methods to the production of steel, copper, nickel, brass, zinc sheets and plates, to rolling shapes, to the manufacture of wire, tubes, &c. Each volume will be divided into the theory and into its application to practice, dealing not alone with steel, but also with the other industrial metals and alloys.

The first volume holds out the promise of a splendid series, and it is more particularly striking in its discussion of the theoretical side, Professor Guillet having acquired a well deserved international reputation as an original investigator and a keen and critical student.

The Manual of Statistics, 1909 Edition. Cloth binding; pages, 1904; 5½ x 8 in. Published by the Manual of Statistics Company, New York. Price, \$5.

The 1909 edition of this work is its thirty-first annual issue. In the past year many changes have been made in corporations in the United States and Canada, as well as in the financial position of railroad and industrial organizations, and the valuable information given in the manual will be more sought for than ever. The contents are well known to banks and trust companies, stock exchange firms and investors. Their usefulness has been increased by an arrangement which makes easier reference to the data on a given company. The railroad section contains maps of the various systems, and considerable space is given to the newer industrial and mining companies. A section is devoted to the statistics of grain and cotton, and there are tables of interest yielding capacity of bonds.

Republic Iron & Steel Company Improvements.—The Republic Iron & Steel Company is making some additions and improvements to its plants in the Youngstown, Ohio, District. As has been announced, a connected company, recently incorporated, will build a pipe mill on property opposite the Haselton blast furnaces, to contain two butt weld and two lap weld mills for making pipe from small sizes up to 12 in. in diameter. Contracts for buildings, furnaces and other equipment have about all been placed. At its Brown-Bonnell department

the Republic company is building a new 20-in. skelp mill, which will replace the 18-in. mill now in operation in this plant, and a new 10-in. continuous skelp mill is also being built. The Republic company recently started up its Republic coke plant of 400 ovens at Republic Station, Pa., and will blow in other ovens at an early date. It is at present operating all of its nine blast furnaces, of which six are located in the Mahoning and Shenango valleys, and has recently been a large purchaser of coke in the open market.

Pittsburgh Foundrymen's Association.

The regular monthly meeting of the Pittsburgh Foundrymen's Association was held at the Fort Pitt Hotel in that city Monday evening, June 7. The following were placed in nomination by the Nominating Committee and were elected by acclamation for the ensuing year: Joseph T. Speer, Pittsburgh Valve, Foundry & Construction Company, president; J. S. Seaman, Seaman-Sleeth Company, vice-president; John McLaren, Phillips & McLaren Company, treasurer; F. H. Zimmers, Union Foundry & Machine Company, secretary. Mr. Zimmers has very acceptably filled the position of secretary since the organization of the association in the '90s. An Executive Committee was also elected, consisting of W. H. McFadden, Mackintosh, Hemphill & Co.; C. H. Gale, Pennsylvania Malleable Company; W. A. Bole, Trafford City Foundries; O. W. Mason, Midland Steel Company, and W. J. Brandt, the Millers Product Company. Henry Spilker, chairman of the committee on a permanent exhibit of foundry appliances, reported that the committee had conferred with a number of representatives of firms that had foundry exhibits at the recent convention held in Cincinnati with a view of having a permanent exhibit of foundry appliances at the Carnegie Technical Schools, Pittsburgh. With two exceptions all had agreed to send their exhibits to these schools to remain permanently. Prof. C. B. Connelly of the Carnegie Technical Schools was present and stated that not over 50 per cent. of the exhibits offered could be accommodated in the schools, but that arrangements might be made later for larger space. It is probable that at least half of the Cincinnati exhibits will be placed in the Carnegie schools.

Re-opening the New York State Steel Company's Plant.

Since the Davidson-Beegle interests of Beaver Falls, Pa., acquired control of the New York State Steel Company's plant in Buffalo in January the construction work has been completed on the lines originally planned, and the plant is now nearly ready for operation. It is expected that the blast furnace will be blown in early in July and that the open hearth department and the rolling mills will be ready to start up about 30 days later. In addition to the blast furnace and the two 250-ton Talbot open hearth furnaces there are blooming and billet mills and a large machine shop. An unloading trestle has been built at the blast furnace and the furnace is equipped with a skip hoist. The company is now bringing down ore from its Mesaba mine at the rate of three or four cargoes a week. For the present the principal portion of the company's product will be sold in the form of slabs, billets and blooms, and any surplus pig iron will be disposed of in that form. The officers of the reorganized company are: Frederick N. Beegle, president; Frederick Davidson, vice-president; Louis R. Davidson, secretary, treasurer and manager. The general offices of the company are at the works on Abbott road, Buffalo River and the D. L. & W. and South Buffalo railroads.

The Gulick-Henderson Company, inspecting engineers and chemists, Pittsburgh and Chicago, recently opened an office in New York at 30 Church street. Henry Gulick will have charge and will be assisted by T. W. Cohill. The company has retained Samuel E. Duff, Empire Building, Pittsburgh, to advise and direct its inspectors in matters of engineering, erection and fabricating shop methods.

PERSONAL.

Grant D. Bradshaw, formerly foreman of rod mills at the Joliet plant of the Illinois Steel Company, has been appointed foreman of the billet mill at the new Gary, Ind., works.

John F. Buckley, formerly superintendent of the Witte Iron Works Company, Kansas City, Mo., is now consulting engineer to the general superintendent of the St. Marys Machine Company, St. Marys, Ohio.

Henry A. Ferguson, 514 Bank of Commerce Building, St. Louis, Mo., lately with Joseph T. Ryerson & Son, has been made district sales agent for the Detroit Steel Casting Company, Morava Construction Company, Steel Roof Truss Company and H. B. Kraut Mfg. Company. He is also engaged in consulting engineering work in connection with structural steel and power plant installations.

James H. Herron is now manager of the Motch & Merryweather Machinery Company, Pittsburgh, Pa. He was formerly the engineer of the Detroit Steel Products Company, Detroit, Mich.

The Ernst Wiener Company, New York, announces that Walter J. Briggs has resigned as director, secretary and treasurer; also that Arthur P. Van Schaick, president of the W. K. Kenly Company, has been elected a director and second vice-president of the company, with headquarters in Chicago.

W. O. Davis, division freight agent of the American Steel & Wire Company, Pittsburgh, has been elected president of the Traffic Club of that city. A. G. Young, general traffic manager of the American Sheet and Tin Plate Company at Pittsburgh, was elected second vice-president, T. J. Walters, secretary, and W. V. Taffner, treasurer.

C. C. Wais, well known as a manufacturer of punches and shears, at Cincinnati, has lately made a business connection with the Covington Machine Company, Covington, Va., which has secured the control of his patents on punches, shears and elliptical boring and turning machinery.

Joseph H. Hyde, chief engineer of the American Car & Foundry Company, has been transferred from the St. Louis, Mo., office to Chicago, Ill.

Herman G. Jacobsson has been appointed ordnance designer of the War Department. He had been connected with the Midvale Steel Company, Philadelphia, Pa.

Frank N. Jewett, who was district manager in charge of the Chicago office of the Wagner Electric Mfg. Company, is now the sales manager of that company at the home office, St. Louis, Mo.

Joseph P. Kirkup has been made Philadelphia representative of the S. J. Wing Mfg. Company. He was previously the testing and experimental engineer of the Green Fuel Economizer Company.

Frank J. McDevitt, lately connected with the Ohio works of the Carnegie Steel Company, Youngstown, Ohio, has become vice-president and manager of the Ohio Steam Specialty Company, Youngstown.

Emerson McMillin, president of the American Light & Traction Company, New York, now fills the newly created position of chairman of the board.

Harold A. Richmond, president of the American Emery Wheel Works, Providence, R. I., will sail on the Friedrich der Grosse June 17. He will visit the company's agencies in Berlin, Vienna, Paris and Copenhagen.

E. T. Clarage, president of the Columbia Tool Steel Company, Chicago Heights, Ill., will give an address on tool steel before the Sheet Metal Trades Superintendents' and Foremen's Club of Cleveland, Saturday evening, June 19.

Quincy Bent, superintendent of the Pennsylvania Steel Company's furnaces at Lebanon, Pa., has been appointed assistant to President F. W. Wood of the Maryland Steel Company at Sparrow's Point, Md. F. B. Dutton succeeds him at Lebanon.

E. R. Thornton has been elected president and superintendent of the Millersburg Fifth Wheel Company, Millersburg, Pa., and C. F. Sponsler secretary and treasurer,

these changes being made in view of the recent death of F. W. Sponsler, who was secretary and treasurer.

William Heyburn, vice-president of the Belknap Hardware & Mfg. Company, Louisville, Ky., will sail for Europe June 19, to be gone three months.

F. M. King of the selling staff of S. F. Bowser & Co., Ft. Wayne, Ind., has returned from a three months' stay in Jamaica.

G. Max Hofmann, Montpelier, Ind., president of the National Steel Casting Company, has returned from an extensive European trip.

OBITUARY.

HENRY A. LANMAN, president of the Columbus Bolt Works, died at Columbus, Ohio, June 5, aged 64 years. He was born in Norwich, Conn., and was educated at the Norwich free academy. Going to Columbus, Ohio, before his majority, he entered the employ of the Ohio Tool & Supply Company. In 1872 he became treasurer of the Columbus Rolling Mill Company, which built a rail mill in 1872, and about the same time was made an officer of the Columbus Bolt Works, with which he was identified up to his death. He was also president of the E. B. Lanman Company, and of the Columbus Machine Company.

BENJAMIN T. RHOADS, Sr., died at Flushing, L. I., June 12, in his ninety-first year. He was superintendent of the Morgan Iron Works for 22 years and supervised the fitting out of the Keokuk, one of the monitors used in the Civil War. From 1856 to 1860 he was a member of the New York Common Council.

ISAAC BURNET RESOR, a pioneer in stove manufacture, died at his home on Resor avenue, Clifton, Cincinnati, June 13, aged 69 years. Half a century of his life was spent in the foundry business. When yet a youth he entered the firm of which his father was the head, located at Second and Rose streets, Cincinnati, and known as the William Resor Stove & Foundry Company. For 27 years he was identified with the business now known as the Monitor Stove & Range Company, of which he was secretary and treasurer. His successor will not be named until the return from abroad of J. G. Schmidlapp, whose son, W. Horace Schmidlapp, is the president of the company. The funeral services were held Wednesday, the 16th, at the Resor home, 429 Resor avenue.

JOSEPH C. CABBLE, president of the William Cabble Excelsior Wire Mfg. Company, New York, died in Brooklyn, June 14. He was a vice-president and trustee of the Bushwick Savings Bank, a director of the Union Bank of Brooklyn and a member of the Manufacturers' Association and of the Union League Club.

ROBERT D. KUHN, manager of the Cleveland office of the Crucible Steel Company of America, died June 11, aged 65 years.

JOSEPH PORTER, president of the Peck Bros. & Co., New Haven, Conn., manufacturer of plumbers' materials, died on June 8 from a paralytic stroke. He was 70 years old and had been ill for nearly a year.

An Ore Nodulizing Plant in Alabama.—The Central Iron & Coal Company, which is connected with the Central Foundry Company, 37 Wall street, New York, is arranging to build an ore nodulizing plant at its blast furnace at Holt, Ala., which will utilize the "blue billy" ores which are a by-product of sulphuric acid works. Plans are now being prepared and it is stated that about \$50,000 will be spent. The Central Foundry Company has a new pipe foundry well under way at Holt, and expects to have it in operation before the summer is over. It will manufacture soil pipe and will have a capacity of about 12,000 tons a year.

In a paper read by Clausel de Coussergues of Paris on electric iron smelting in France before the International Congress of Applied Chemistry at London, the statement is made that Unieux has adopted a new form of Keller furnace, consisting of a single cylindrical receptacle with a spherically vaulted cover through which pass four electrodes, two of each polarity.

NEWS OF THE WORKS.

Iron and Steel.

It is understood that R. G. Peters, Manistee, Mich., has taken over Rome Furnace at Rome, Ga., and that he will increase the capacity of the stack from 70 tons to 150 tons of pig iron per day. This furnace was built about 20 years ago, and has been in almost continuous operation since that time. Mr. Peters, it is reported, also has in view the building of a car wheel plant to use the iron from the furnace. Work of grading will start shortly on the Rome & Northern Railroad, which will extend through several counties to the coal and iron fields in Tennessee, a distance of about 100 miles from Rome. A short time ago Mr. Peters purchased 10,000 acres of rich iron ore on the east slope of Taylor's Ridge, about 25 miles from Rome, and has begun the development of the property. The road is to be constructed to afford an outlet for the iron ore. The general offices of the Rome & Northern Railroad Company will be at Rome, and H. H. Shackelton will be general manager.

The Wheeling Steel & Iron Company now has two blast furnaces in operation, the Martin's Ferry, Ohio, stack having been blown in early in June.

One Shoenberger furnace of the American Steel & Wire Company at Pittsburgh, Pa., was blown in May 31, and the second stack early in June.

The McKeesport Tin Plate Company, McKeesport, Pa., recently increased its capital stock from \$600,000 to \$1,200,000. The additional capital will be used in the building of 10 hot mills in the plant, making it a 20 hot mill plant, the largest independent tin plate works in the country.

G. W. McClure, Son & Co., Pittsburgh, engineers and contractors, builders of blast furnaces, &c., have received an order from the Northern Iron Company, Port Henry, N. Y., for two McClure firebrick hot blast stoves, 20 ft. in diameter by 95 ft. high.

The new sheet mill plant being erected by the West Penn Steel Company at Brackenridge, Pa., is being pushed rapidly, and the company expects to have it ready for operation in October. The steel buildings are nearly finished and foundations have been placed for the furnaces and machinery. All contracts for equipment have been placed and part of it is on the ground ready to be installed. W. R. Walton, Brackenridge, Pa., is the designing and operating engineer.

The Jones & Laughlin Steel Company, Pittsburgh, has just put in operation four new Talbot continuous basic open hearth furnaces, which give it nine Talbot furnaces, of a daily capacity of about 250 tons each. The construction of the additional four furnaces was begun several years ago, but was abandoned temporarily during the recent depression. Resumption was ordered about six months ago. The new group is run by producer gas, while the fuel used in the original five furnaces is natural gas. The new equipment materially increases the steel making capacity of the company, but present conditions in the market are such that the nine Talbots and the other open hearth furnaces are making a normal output. The company is building a new merchant bar mill which will roll rounds from 9-32 to 1½ in., squares from 5-16 to 1½ in., and flats in proportion. The new mill will make a total of 13 merchant mills at the plant.

The Compania Fundidora de Hierro y Acero, which operates two Belgian mills at Monterrey, Mexico, for rolling bars and a 28-in. mill which has heretofore rolled light and standard section rails, has decided to engage in the manufacture of structural steel shapes, being influenced in this course by the change in duties on steel during the last 18 months. A contract for the necessary rolls has been placed with the Seaman-Sleeth Company of Pittsburgh, and these rolls will be made under the Seaman process and will be of the same type as furnished to the Lackawanna Steel Company, Eastern Steel Company and the South Chicago, Gary and Bethlehem mills, and will have a capacity for rolling I-beams up to 24 in.

Ella Furnace at West Middlesex, Pa., owned and operated by Pickands, Mather & Co., Cleveland, Ohio, has recently been much improved. The stack has been relined, two hot blast stoves rebuilt and general repairs made. It is not decided when the furnace will go into blast.

The steel plant of the Tennessee Coal, Iron & Railroad Company at Ensley, Ala., is again in operation after an idleness of about two months.

Belfont Furnace, Ironton, Ohio, was expected to blow out this week for minor repairs.

Practically all departments of the Riverside plant of the National Tube Company at Wheeling, W. Va., are now in full operation. The two blast furnaces are running, the pipe mills are on double turn, and about 2500 men are at work. The blast furnaces and the entire plant has been idle since November, 1907.

General Machinery.

Plans are being prepared by the McLaughlin Building Material Company, Chicago, for the erection of an ice and refrigerating plant for the Gary Pure Ice Company, Gary, Ind. It has not been definitely decided when work upon this improve-

ment will be begun, but it is likely that it will be undertaken some time the present year. It is estimated that the contemplated plant will cost about \$60,000.

There is no truth in the report that the Lufkin Foundry & Machine Company will move its plant to Shreveport, La., in the near future. The company will remain in Lufkin, Texas, where it has a modern plant equipped for the manufacture of high grade sawmill machinery.

The Union Machine & Supply Company, Nashville, Tenn., manufacturer of elevators, special fertilizer machinery, &c., has changed its name to the Atlas Machine Company, and Thomas Parkes, formerly in charge of the mill supply and contracting department of Keith, Simmons & Co., has acquired a large interest in the Atlas Machine Company and has been elected vice-president and general manager. He will be in active charge of the plant. The company has leased for a number of years the commodious building on Commerce street, extending from Second and Third avenues north, which it will shortly occupy. It is the intention to extend the business considerably.

H. B. Barkins & Co., 315 Twelfth street, San Francisco, Cal., are building a plant at Lodi for the manufacture of grinding, bolting, conveying and elevating machinery, which comprises the line of equipment in which the company is interested. The San Francisco offices will be conducted as heretofore.

J. S. Getchell & Son, Caribou, Maine, whose foundry and machine shop were recently destroyed by fire, are to move into another building which they own to fill orders. It has not yet been decided what new tools will have to be purchased to replace those lost, but a 5 or 6 hp. gas engine will be used until fall.

The Chadbourn Iron Works Company, Chadbourn, N. C., recently incorporated, has taken over the machine shop and foundry of the Chadbourn Iron Works, which it will continue in operation. A general machine and foundry business will be carried on, and later it is the intention to manufacture gasoline traction engines for use in small logging and lumber operations. The company would be pleased to hear from manufacturers of gasoline engines and transmissions.

The Otis Elevator Company will add to its plant at Grider street and the New York Central Railroad, Buffalo, N. Y., a one-story brick woodworking shop, 60 x 256 ft., to cost \$20,000. Considerable woodworking machinery will be installed.

Mackintosh, Hemphill & Co., Pittsburgh, Pa., builders of rolling mill machinery, &c., have received a contract from the Portsmouth Steel Company, Portsmouth, Ohio, for a 42 x 60 in. geared reversing engine and a 35-in. blooming mill.

Foundries.

The Central City Iron Works, Stevens Point, Wis., which has been idle for some time, has been reopened by the Stevens Point Foundry & Machine Company, recently organized to manufacture light and heavy gray iron and brass castings and to handle machinery repair work. The officers of the company are Michael Hawkins, president; J. J. Neuberger, treasurer, and R. A. Oberlatz, secretary and manager.

The Garwood Bronze & Iron Works, Garwood, N. J., recently incorporated, has acquired the plant and business of the Enterprise Foundry Company and will manufacture gray iron, bronze, brass and aluminum castings, specializing in stove plate work. Light machining, annealing and enameling will also be done. The company will improve and enlarge the plant as the demand requires. W. S. Tuttle is president and W. T. Dette secretary and treasurer.

The McWane Tide Water Pipe Company, Norfolk, Va., has been incorporated with a capital stock of \$300,000, with the following officers: President, H. E. McWane; vice-president, F. S. Kirkpatrick; secretary and treasurer, W. W. Coffey, all of Lynchburg, Va. The president and vice-president hold similar positions with the Lynchburg Foundry Company, which operates large pipe works at Lynchburg and Radford, Va. The Lynchburg Foundry Company intends to erect extensive cast iron pipe works at Norfolk, and this new company was organized to build and operate the plant.

The Ohio Brass & Iron Mfg. Company, Columbus, Ohio, started its brass foundry last week, after a shutdown of nearly 18 months. It is reported that an accumulation of orders for brass and aluminum castings will insure steady operation for the summer. It is expected that the iron foundry and machine department will be started soon. President J. B. Orbison announces that in the interval of idleness new and modern machinery has been installed and the plant placed in the best possible condition.

The Mayer Bros. foundry and machine shop at Mankato, Minn., has been taken over by the bondholders and will be operated by H. F. Leonard, trustee, until leased or sold.

Power Plant Equipment.

Recent sales of the Crocker-Wheeler Company, Ampere, N. J., include machine shop department, Armour & Co., Chicago, Ill., 1500-kw. generator; Landers, Frary & Clark, New Britain, Conn., 8000-kw. generator; Warner Brothers Company, Bridgeport, Conn., a 150-kw. and a 329-kw. generator; Keystone Steel & Wire Company, Peoria, Ill., 150-kw. generator; Napier &

Mitchell Mfg. Company, Belleville, N. J., 150-kw. generator and six 15-hp. motors; Illinois Steel Company, South Chicago, Ill., two 110-hp. direct current motors; Northern Engineering Works, Detroit, Mich., 247-hp. of direct current series wound crane motors; Central Iron & Coal Company, Holt, Ala., 102-hp. of motors; National Cash Register Company, Dayton, Ohio, three 50-hp. direct current motors; J. P. Canepa, Chicago, Ill., 14 motors; Carthage Ice & Electric Company, Carthage, Texas, 195-hp. of three phase induction motors, two 10-kw. stepdown transformers and one 200-kva. generator.

The McGregor Light & Power Company, McGregor, Iowa, will increase the capacity of its present system by the addition of a duplicate plant in which a new engine and dynamo are to be installed.

The Mammoth Springs Electric Light & Power Company, Mammoth Springs, Ark., has filed articles of incorporation with a capital stock of \$10,000, the incorporators being Napoleon Hill, E. C. Parham, E. C. Bellamy and Frank P. Hill.

The Mason City & Clear Lake Railway Company, Mason City, Iowa, has decided to erect a power plant at that place to develop electric current of 3000 kw. Equipment required for this improvement includes two steam turbines of 1500 kw. each. When this improvement is completed the present power station at Emery will be discontinued, and it is expected that the new plant will be ready for operation about November 1.

The Wyoming Power Company, Sheridan, Wyo., has in contemplation the construction of a new power plant of 5000 hp. Ground has already been broken for this improvement, but complete arrangements have not yet been made.

Bids are being taken by the Des Moines Electric Company, Des Moines, Iowa, for the construction of an extension to its plant which will enlarge it to 135 x 162 ft. There will also be erected a smokestack 210 ft. high by 16½ ft. in diameter.

The Board of Trustees, Carleton College, Northfield, Minn., is considering the installation of a central heating and power plant to furnish light and heat for the college buildings, at an estimated cost of between \$30,000 and \$40,000.

Plans are being considered by the City of Detroit, Minn., for the installation of a modern high voltage electric light and power plant of sufficient capacity to furnish night and day service, a pumping station with electrically driven pumps and the extension of water mains.

The Board of Trustees of the Ohio Hospital for Epileptics, Gallipolis, Ohio, will receive bids July 22 for two water tube boilers.

Bridges and Buildings.

The structural and ornamental iron business of Harris H. Uris, New York, has been incorporated under the name of the Harris H. Uris Iron Works. The new company will continue in operation the modern plant at 525-535 West Twenty-sixth street.

The Penn Bridge Company, Beaver Falls, Pa., has received a contract for erecting the steel buildings of the Niles Forge & Mfg. Company at Niles, Ohio, which will manufacture supplies, making a specialty of heavy forgings.

The Mineral Range Railroad will build a viaduct connecting its properties at Houghton, Mich., and improvements of considerable magnitude are to be entered upon later.

The structural steel work for the new Barkhausen docks at Green Bay, Wis., has been secured by the Lysle Engineering Company, Chicago.

The Forest City Steel & Iron Company, Cleveland, Ohio, has received a contract from the Cleveland Worsted Mills Company for the erection of a steel factory building, six stories, 80 x 170 ft.

The Fort Erie & Buffalo Bridge Company, which received a charter from the Dominion Parliament at its last session for the construction of a steel bridge across the Niagara River from Murray street, Fort Erie, to Ferry street, Buffalo, N. Y., is having surveys made and soundings taken by Gigne & Jennings, civil engineers, Toronto. Daniel Hyman, Fourth and Virginia streets, Buffalo; Donald McGillivray, Port Colborne, Ont., and W. E. Finn, Welland, Ont., are among the provisional directors. The company is capitalized at \$1,000,000.

Fires.

The plant of the Specialty Foundry Company, Zelienople, Pa., was burned June 5, the loss being about \$15,000.

Hardware.

The Seymour Mfg. Company, Seymour, Conn., is installing a steam power plant to help out in the dry season. The company manufactures sheet brass and German silver, copper, brass and German silver wire and tubing, making a specialty of German silver in all forms for all classes of work.

Reports that the plant of the American Axe & Tool Company, Beaver Falls, Pa., had been put on double turn are untrue. The company advises us it is operating only three days a week at present.

Miscellaneous.

The Electric Welding Products Company, Cleveland, Ohio, has completed a new three-story addition which will give it nearly double the present manufacturing floor space. The greater part of the new addition will be equipped to handle gas

engine and motor car parts. The increase of facilities was made necessary by the growing demand for the company's products, although its capacity has been constantly increased by the installation of additional machinery. The company expects to bring out some new products this year.

Steinway & Sons, New York, have sold their piano factory on Park avenue, between Fifty-second and Fifty-third streets, and have secured a building in Long Island City, where the factory will be moved.

The J. E. Mergott Company, Jersey City, N. J., is to erect a new factory, 38 x 150 ft., two stories, at a cost of about \$10,000.

The General Fireproofing Company, Youngstown, Ohio, manufacturer of all steel furniture and filing equipment and other specialties, including cold twisted lug bar, expanded steel lath, &c., announces that it is now offering for sale a superior grade of diamond mesh expanded metal, made by an improved process. Among points of superiority claimed for this product are that the metal is not stretched, strained nor weakened, there is no danger of crystallization, the full strength of the steel is preserved, the original thickness and sectional area of the metal are not diminished, the process of manufacture induces no initial stresses in the steel, it requires no annealing and is never brittle. The company owns the patents outright under which this expanded metal is made. It is sold in established standard weights and sizes, and samples and prices will be furnished on request.

The Forter-Miller Engineering Company, Pittsburgh, engineer and contractor, builder of Forter gas producers and all types of furnaces, has received a contract from the La Magonad Italia Soggetta Anonima, at Florence, Italy, where it operates a large steel plant, for platforms, conveyors, gas producers, &c., for a complete and modern producer plant; also the third successive order for gas producers from Spang, Chalfant & Co., Pittsburgh, and the second successive order from the Philadelphia Quartz Company, Chester, Pa.

The Rapid Motor Vehicle Company, Pontiac, Mich., will build a new factory building, 60 x 640 ft., two stories, of brick and steel construction.

The Duncan Electric & Mfg. Company, Lafayette, Ind., will erect and equip a five-story factory building, 130 x 132 ft. The building will be of stone, steel and reinforced concrete construction.

The American Steam Gauge & Valve Mfg. Company, Boston, Mass., has recently furnished the following equipment for the three new colliers built by the Maryland Steel Company for the United States Government: 18 American Thompson improved indicators, 3 10-in. chime whistles, 3 6-in. siren whistles, 12 3½-in. duplex pop safety valves, 3 2-in. single pop safety valves, 18 steam and water relief valves, 12 cylinder relief valves, 52 gauges, 3 clocks, 6 counters. The company has also furnished the following for the North Dakota, built by the Fore River Shipbuilding Company: 6 clocks, 108 steam and vacuum gauges, 2 counters, 68 valves.

The McGinness-Smith Company, heating engineer and contractor, Pittsburgh, has been awarded a contract for steam heating and 8500 ft. of radiation required in the new addition to the Jenkins Building in Pittsburgh, also for the direct and indirect steam radiation for a new four-room schoolhouse at West View, Pa.

The Board of Water Commissioners, Niagara Falls, N. Y., will receive bids on June 21 for 1700 ft. of 48-in. steel intake pipe and two timber and concrete cribs to be erected in the Niagara River about 1500 ft. from the American shore.

The Atlas Locomotive Ashpan Company has been organized at Ft. Wayne, Ind., with \$200,000 capital stock, to manufacture an ashpan for locomotives. It is the invention of J. A. Schwartz and Thomas F. Whelan, engineers on the Nickel Plate road, and is now in exclusive use on that company's locomotives. The incorporators are the two inventors and N. W. Myers, H. O. Cowing, Sr., and L. E. Merriman.

An important contract has been awarded the Greer Filter Mfg. Company, Inc., Pittsburgh, Pa., which involves the construction of filter beds for the water supply of Punxsutawney, Pa., together with reservoirs and all necessary equipment, and with a capacity equal to double the present daily requirements of the borough. The Punxsutawney Water Company, which has the franchise for the borough water supply, awarded the contract. Construction work is to begin at once. The filtration plant will consist of four filter beds, which are to be located at a point called Clover Run dam, 12 miles from Punxsutawney, back in the mountains. The piping of this water into the borough will be by large feed mains. From the beds these are to pass to a reservoir, which will have a capacity of 1,500,000 gal. in order to insure a steady reserve supply of water for fires and extraordinary demands. The filter plant alone will represent an outlay of \$75,000. The new reservoir is to be constructed close to Punxsutawney.

The Creston Water Works Company, Creston, Iowa, has appropriated between \$25,000 and \$30,000 for the purpose of making extensive improvements to its water works system.

John W. Elvey, Phoenix, N. Y., desires prices on a 15-hp. gasoline hoisting engine with two drums, new or second-hand.

The Iron and Metal Trades

Pig Iron Markets Fairly Active and Firmer.

The Argentine Rail Order Virtually Placed.

While a fair degree of activity characterizes the foundry iron markets, it is in basic, in pipe irons and in forge that larger transactions keep coming up. Eastern Pennsylvania steelmakers, who are supposed to have pretty well covered, have taken additional basic iron for the third and fourth quarters. One purchased 17,000 tons for the third quarter at \$15.50, delivered, and another 10,000 tons for the fourth quarter, with 8000 tons still pending. Pipemakers have purchased 12,000 tons, while Eastern puddling mills have bought some good sized lots. In Chicago there has been a sale of 6000 tons of malleable Bessemer, while Pittsburgh reports a sale of 4000 tons. There has been further buying of Bessemer pig and gray forge at Pittsburgh. Close upon 5000 tons of ferromanganese have been sold for delivery during the first half of next year on the basis of \$42, Baltimore.

Eastern billet makers are asking an advance of \$1 to \$2 per ton, but as yet no purchases of any magnitude are reported at the higher range.

The Chicago mills are being crowded with specifications, and with well stocked order books the question of meeting deliveries is beginning to loom up.

The official announcement that the Harriman order for about 150,000 tons of rails has been allotted is expected from day to day. There are indications that some of the work has been already awarded. Another liberal tonnage from another system is also about to be announced. Sales for the week include 3000 tons for the Central Iowa and 4200 tons for the Minneapolis & St. Louis. The Lackawanna Works secured 12,500 tons from the Northern Pacific.

The contract for 49,000 tons of steel rails for the Argentine is virtually closed, the work being secured by the U. S. Steel Products Export Company.

In the Chicago District five systems are in the market for a total of 10,000 cars, and the appearance of some large inquiries for plates in the Eastern markets indicates that demand for like purposes is cropping up in that section. Eastern plate makers have under consideration also some good tonnage for shipbuilding.

Quite a string of good sized orders has been placed for structural material and the fabricating shops are steadily getting into better shape. Among the business taken is 3000 tons for a hotel in Salt Lake City, 3000 tons for the Brown Building in Cleveland and 1900 tons for the Ray copper smelter. Included in the work on the eve of being awarded is 4200 tons for the Reading track elevation at Philadelphia, 3500 tons for a bridge in the same city, 6000 tons for a bridge near Pittsburgh, 3500 tons for two piers in this city, 9000 tons for the post office at the Pennsylvania Terminal in this city, and 4000 tons for a building for the American Bank Note Company. The St. Paul road is in the market for 12,000 tons of bridge work.

The sheet and tin plate trades are little disturbed over the pending contest over the open shop policy adopted by the American Sheet & Tin Plate Company. The union sheet mills embrace the Aetna, with 23 mills; the Guernsey, with 11 mills; the Midland, with 7; the Struthers, with 6, and the Piqua, with 4 mills; a total of 51 mills. The non-union mills number 135. The union tin plate plants, which include the American at Elwood, the Laughlin, Sharon, New Castle and Shenango, number 8, and are equipped with 133 mills. The non-union plants number 9 and have 90 mills.

The leading makers of iron bars in the Pittsburgh District, at a meeting held last week, decided to advance the base price.

The contractors who were the lowest bidders on the high pressure service for New York have not yet placed the contract for the pipe. At Buffalo, where a large tonnage of water pipe was called for, there was only one bidder, to whom the award has not yet been made.

The coke trade is getting into better shape. An interesting transaction concluded last week in Pittsburgh calls for the delivery of 15,000 tons of coke per month for a period of three years, involving, therefore, a total of 540,000 tons. The price is determined by a sliding scale.

A Comparison of Prices.

**Advances Over the Previous Month in Heavy Type,
Declines in Italics.**

At date, one week, one month and one year previous.

June 16, June 9, May 19, June 17,
1909. 1909. 1909. 1908.

PIG IRON, Per Gross Ton : \$16.50 \$16.50 \$16.00 \$16.50

Foundry No. 2, standard, Philadelphia 14.50 14.50 14.50 15.25

Foundry No. 2, Southern, Cincinnati 16.50 16.50 16.50 17.85

Basic, delivered, Eastern Pa. **15.50** 15.50 15.00 15.25

Basic, Valley furnace **14.75** 14.50 14.00 15.25

Bessemer, Pittsburgh **16.15** 15.90 15.90 16.90

Gray forge, Pittsburgh **14.90** 14.65 14.40 14.90

Lake Superior charcoal, Chicago. 19.50 19.50 19.50 20.00

BILLETS, &c., Per Gross Ton :

Steel billets, Pittsburgh 23.00 23.00 23.00 25.00

Forging billets, Pittsburgh 25.00 25.00 25.00 27.00

Open hearth billets, Philadelphia **25.00** 25.00 24.50 26.20

Wire rods, Pittsburgh 29.00 29.00 29.00 33.00

Steel rails, heavy, at mill 28.00 28.00 28.00 28.00

OLD MATERIAL, Per Gross Ton :

Steel rails, melting, Chicago. **15.00** 14.75 14.00 13.00

Steel rails, melting, Philadelphia **16.00** 15.75 15.25 13.50

Iron rails, Chicago **17.00** 17.00 16.50 15.50

Iron rails, Philadelphia **19.50** 19.50 18.00 18.00

Car wheels, Chicago **16.00** 16.00 14.75 13.00

Car wheels, Philadelphia 15.00 15.00 15.00 13.50

Heavy steel scrap, Pittsburgh **15.75** 15.50 15.25 13.25

Heavy steel scrap, Chicago **14.50** 14.50 13.75 12.00

Heavy steel scrap, Philadelphia. **16.00** 15.75 14.25 13.50

FINISHED IRON AND STEEL,

Per Pound :

Refined iron bars, Philadelphia. **1.45** 1.40 1.40 1.40

Common iron bars, Chicago. **1.35** 1.30 1.30 1.50

Common iron bars, Pittsburgh. **1.40** 1.30 1.30 1.40

Steel bars, tidewater, New York 1.36 1.36 1.36 1.56

Steel bars, Pittsburgh. **1.20** 1.20 1.20 1.40

Tank plates, tidewater, New York **1.41** 1.41 1.46 1.76

Tank plates, Pittsburgh **1.25** 1.25 1.30 1.60

Beams, tidewater, New York **1.41** 1.41 1.46 1.76

Beams, Pittsburgh **1.35** 1.25 1.30 1.60

Angles, tidewater, New York **1.41** 1.41 1.46 1.76

Angles, Pittsburgh **1.25** 1.25 1.30 1.60

Skelp, grooved steel, Pittsburgh. 1.30 1.30 1.30 1.45

Skelp, sheared steel, Pittsburgh. 1.40 1.40 1.40 1.50

SHEETS, NAILS AND WIRE,

Per Pound :

Sheets, black, No. 28, Pittsburgh 2.20 2.20 2.20 2.50

Wire nails, Pittsburgh 1.70 1.70 1.70 1.95

Cut nails, Pittsburgh 1.65 1.65 1.65 1.75

Barb wire, galv., Pittsburgh 2.00 2.00 2.00 2.40

METALS, Per Pound :

Lake copper, New York **13.62½** 13.75 13.25 13.00

Electrolytic copper, New York **13.37½** 13.62½ 13.00 12.87½

Spelter, New York **5.50** 5.50 5.15 4.57½

Spelter, St. Louis **5.35** 5.35 5.00 4.40

Lead, New York 4.35 4.40 4.35 4.50

Lead, St. Louis 4.25 4.30 4.30 4.40

Tin, New York **29.50** 29.50 28.80 28.00

Antimony, Hallett, New York 7.50 7.75 7.75 8.50

Nickel, New York 45.00 45.00 45.00 45.00

Tin plate, 100 lb., New York \$3.64 \$3.64 \$3.64 \$3.89

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Prices of Finished Iron and Steel F.O.B. Pittsburgh.

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 20c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural steels and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Shapes.—I-beams and channels, 3 to 15 in., inclusive, 1.25c. to 1.30c., net; I-beams over 15 in., 1.35c., net; H-beams over 8 in., 1.45c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.30c., net; angles, over 6 in., 1.35c., net; angles, 3 x 3 in. and up, less than ¼ in., 1.45c., base, half extras, steel bar card; tees, 3 in. and up, 1.30c., net; zees, 3 in. and up, 1.30c., net; angles, channels and tees, under 3 in., 1.20c., base, plus 10c., half extras, steel bar card; deck beams and bulb angles, 1.60c., net; hand rail tees, 2.70c., net; checkered and corrugated plates, 2.70c., net.

Plates.—Tank plates, ¾ in. thick, 6½ in. up to 100 in. wide, 1.25c. to 1.30c., base. Extras over this price are as follows:

Tank, ship and bridge quality, ¾ in. thick on edges, 100 in. wide, down to but not including 8 in. wide, is taken as base.

Steel plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, shall be considered $\frac{3}{4}$ -in. plate. Steel plates over 72 in. wide must be ordered $\frac{1}{4}$ -in. thick on edge, or not less than 11 lb. per square foot, to take base price. Steel plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under $\frac{1}{4}$ -in. to and including 3-16-in. plates on thin edges.....	\$0.10
Gauges under 3-16-in. to and including No. 8.....	.15
Gauges under No. 8 to and including No. 9.....	.25
All sketches (excepting straight taper plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....	.10
Complete circles.....	.20
Boiler and flange steel plates.....	.10
"A. B. M. A." and ordinary firebox steel plates.....	.20
Still bottom steel.....	.30
Marine steel.....	.40
Locomotive firebox steel.....	.50
Shell grade of steel is abandoned.	
For widths over 100 in. up to 110 in.....	.05
For widths over 110 in. up to 115 in.....	.10
For widths over 115 in. up to 120 in.....	.15
For widths over 120 in. up to 125 in.....	.25
For widths over 125 in. up to 130 in.....	.50
For widths over 130 in.....	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.30c. f.o.b. Pittsburgh.

Sheets.—Minimum prices for mill shipments on sheets in carload and larger lots, on which jobbers charge the usual advances for small lots from store, are as follows: Blue annealed sheets, No. 10 and heavier, 1.65c.; Nos. 11 and 12, 1.70c.; Nos. 13 and 14, 1.75c.; Nos. 15 and 16, 2.05c.; box annealed sheets, Nos. 17 to 21, 2c.; Nos. 22 to 24, 2.05c.; Nos. 25 and 26, 2.10c.; No. 27, 2.15c.; No. 28, 2.20c.; No. 29, 2.25c.; No. 30, 2.35c. Galvanized sheets, Nos. 13 and 14, 2.25c.; Nos. 15 and 16, 2.35c.; Nos. 17 to 21, 2.50c.; Nos. 22 to 24, 2.65c.; Nos. 25 and 26, 2.85c.; No. 27, 3.05c.; No. 28, 3.25c.; No. 29, 3.25c.; No. 30, 3.60c. Painted roofing sheets, No. 28, 1.55c. per square. Galvanized roofing sheets, No. 28, 2.80c. per square for $2\frac{1}{2}$ -in. corrugations.

Wrought Pipe.—Discounts on steel pipe, $\frac{3}{4}$ to 6 in., in carloads to the largest trade, are 81 and 5 per cent. off list, and on iron pipe, $4\frac{1}{2}$ to 8 in., are 78 and 5 per cent. off list.

Boiler Tubes.—Regular discounts are as follows:

Boiler Tubes.	Steel.
1 to $1\frac{1}{2}$ in.....	50
$1\frac{1}{4}$ to $2\frac{1}{4}$ in.....	62
$2\frac{1}{4}$ to 5 in.....	70
$2\frac{1}{4}$ in.....	64
6 to 13 in.....	62
$2\frac{1}{2}$ in. and smaller, over 18 ft. long, 10 per cent. net extra, $2\frac{1}{2}$ in. and larger, over 22 ft. long, 10 per cent. net extra,	

Wire Rods.—Bessemer rods, \$29; chain rods, \$29; basic rods, \$29 to \$30.

Chicago.

FISHER BUILDING, June 16, 1909.—(By Telegraph.)

The extent to which mill activities have been quickened by the heavy tonnage of rolled products placed since prices were reduced is being emphasized by the gradual lengthening of delivery dates on the heavier lines, such as bars, plates and structural shapes. On all these the leading mills are now 30 days or more behind. With the exception of bar iron mills and a few independent steel bar mills, all finishing capacity of the mills in this district is nearly as fully engaged as in 1907. The plants of the Illinois Steel Company outside of Gary are going at a fraction better than 94 per cent. of full capacity, and but for a temporary shortage of steel this gap would be practically closed up. New rail purchases continue to be a conspicuous feature of the market, a total of 36,500 tons having been entered last week by the mills. This does not include any of the rails embraced in the Harriman Line inquiries, amounting to 150,000 tons, nor those of another Western line, soon to be placed. These orders, moreover, have been supplemented by liberal purchases of track fastenings, with others in prospect. The car shops have as yet participated but little in the demand for railroad equipment, but the new inquiries for cars now under consideration indicate that five roads will place contracts for approximately 10,000 cars in the near future. Owing to the fact that mill congestion is likely to interfere with prompt shipment of orders for several weeks at least, the implement makers are specifying freely against contracts for steel bars for July shipment. The same influence is prompting consumers of structural material to anticipate their wants by specifying farther ahead than they have been doing. With but few exceptions, quoted market prices are firmly held, and the tendency all along the line is toward further improvement, which will probably come by degrees.

Pig Iron.—While prices are not higher, the general tone of the market is plainly stronger, especially as regards forward commitments. Except for moderate lots of prompt iron, upon which concessions of, perhaps, 25c. a ton can be had, current prices are generally well maintained on both Northern and Southern irons. There are still a few fair lots of foundry iron under negotiation, though the bulk of the trading is in small lots of a few hundred tons each. Among notable purchases included in last week's business

was one of 6000 tons of malleable Bessemer for last half delivery taken by a prominent car wheel interest. Arrangements made for a still larger tonnage by the same concern involve no new purchase. A notable feature in recent buying has been the heavy demand for off grade iron brought about by the high prices of melting scrap, and consumers are using larger quantities of new iron. As a result the market is now practically bare of off grades. The Northern furnaces are selling through the last half at \$16, furnace, and \$11.50, Birmingham, on Southern iron, is still available for this period from one source at least; but few of the producers are willing to go beyond third quarter at this price, while some are holding at \$12 for the second half. There is no change in the merchant furnace situation in this district. Of the steel works furnaces, No. 9 stack at the South works of the Illinois Steel Company was blown in June 11, and No. 9 at Gary on June 13. All of the completed stacks, four in number, are now in operation at Gary, and 10 of the 11 stacks at the South works are in blast. Only two of the available stacks of the Illinois Steel Company are now idle, and it is expected that these will be blown in by July 1. The following prices are for June delivery, f.o.b. Chicago:

Lake Superior charcoal.....	\$19.50 to \$20.00
Northern coke foundry, No. 1.....	17.00 to 17.50
Northern coke foundry, No. 2.....	16.50 to 17.00
Northern coke foundry, No. 3.....	16.00 to 16.50
Northern Scotch, No. 1.....	17.50 to 18.00
Southern coke, No. 1.....	16.35 to 16.85
Southern coke, No. 2.....	15.85 to 16.35
Southern coke, No. 3.....	15.35 to 15.85
Southern coke, No. 4.....	14.85 to 15.35
Southern coke, No. 1 soft.....	16.35 to 16.85
Southern coke, No. 2 soft.....	15.85 to 16.35
Southern gray forge.....	14.35 to 14.85
Southern mottled.....	14.10 to 14.60
Malleable Bessemer.....	16.50 to 17.00
Standard Bessemer.....	17.40 to 17.90
Jackson Co. and Kentucky silvery, 6 %.....	19.90 to 20.40
Jackson Co. and Kentucky silvery, 8 %.....	20.90 to 21.40
Jackson Co. and Kentucky silvery, 10 %.....	21.90 to 22.40

(By Mail.)

Billets and Rods.—No transactions of importance are reported in billets, but the few small sales of forging billets made indicate that prices are firm at \$26, Chicago. Most makers are, in fact, asking higher prices, and few, if any, are actively seeking orders for semifinished material. Specifications against outstanding contracts for wire rods are being freely offered, but not much new business is being booked. Prices are firm at quotations named elsewhere.

Rails and Track Supplies.—Last week developed a considerable business in rails, of which 4300 tons was from the Chesapeake & Ohio, 3000 tons from the Iowa Central, 4200 tons from the Minneapolis & St. Louis, all open hearth rails, placed with the Illinois Steel Company. In addition to these an order for 25,000 tons was placed by the Northern Pacific, half of which was taken by the Illinois Steel Company, the other half going to the Lackawanna mills. The portion secured by the former interest calls for open hearth rails, which together with the other orders noted increases the bookings for Gary by 24,000 tons. The demand for track fastenings has also been greatly increased in consequence of the heavy rail purchases made in the last two months. The Illinois Steel Company has received an order for 300,000 pairs of angle bars amounting to 8000 tons, together with a large order for bolts and spikes from the Missouri Pacific. The Chicago & Alton is in the market for 10,000 pairs of angle bars, and it is likely that further buying in this line will be required by other roads. A moderate tonnage in light rails is being entered, and save for unimportant concessions offered by a few rerolling mills, prices are absolutely firm at the following quotations: 40 to 45 lb. sections, \$26; 30 to 35 lb. sections, \$26.75; 16, 20 and 25 lb. sections, \$27; 12-lb. sections, \$28, Chicago, less 50c. a ton on lots under 500 tons and \$1 a ton on lots over 500 tons.

Structural Material.—Not many large contracts were included in last week's business, but fabricating orders for small and moderate lots were numerous. Among the railroad contracts let for bridge material were several placed by the Chicago, Milwaukee & St. Paul, which were distributed as follows: 800 tons to McClintic-Marshall Construction Company, 395 tons for a bridge at Hastings, Minn., to the Fort Pitt Bridge Works, 250 tons for the Kinickinnic overhead crossing at Milwaukee to Riter & Conley, and a three-girder span of 680 tons, which is understood to have been taken by the American Bridge Company. The Wisconsin Bridge Company secured 185 tons for the Cedar Creek bridge of the Rock Island & Southern Railway. Figures are being taken by the Chicago, Milwaukee & St. Paul on 1100 tons for bridges in Montana and Idaho, and 800 tons for the Renslow viaduct; figures are also being taken on a considerable amount of material required by the Chicago, Milwaukee & St. Paul for track elevation work at Milwaukee. The tonnage taken for building structures includes 1700 tons for the Denver Gas & Electric Company, which is credited to the American Bridge Company, which is also said to have taken 105 tons for a bank at Twin Falls, Idaho; 277 tons for a warehouse to be constructed by the

Chicago Telephone Company, placed with the Modern Steel Structural Company, and 1900 tons secured by the Kansas City Structural Steel Company for the erection of a smelter for the Guggenheim interests at Ray, Utah. The general contract for the construction of the Chicago & Northwestern Railway power house at Chicago has been let to the Fuller Company, but the 500 tons of steel has not been placed. The Des Moines Bridge & Iron Company, Des Moines, Iowa, has the contract for the steel grand stand at the Iowa State Fair Ground, Des Moines, 1000 tons; also for the Cedar Rapids Candy Factory Building, Cedar Rapids, Iowa, 350 tons. The fabricating shops are steadily filling up with orders, and delivery dates are beginning to be an important factor in the placing of contracts. At the same time these conditions have not had much effect on prices, which are hardening very slowly. The structural mills are now nearly all booked pretty well up to their capacity for the remainder of the year, and are generally running six to eight weeks behind in deliveries. Some of the Eastern independent mills are asking 1.35c., Pittsburgh, but \$1 a ton less is yet available. The price of plain material is now firmly established at 1.45c., Chicago.

Plates.—No individual tonnage of exceptional size is included in current orders, but the general demand continues fairly active. Specifications are being supplied at a good rate, and the leading mills are now about 30 days behind on deliveries. This condition has been created without much assistance from the car shops which, thus far, have been doing very little. Several Western lines have inquiries out for car orders which are likely to be placed very soon. It is, therefore, likely that the mills will receive considerable new plate tonnage from this source in the near future. Prices are now firm at 1.48c., Chicago, for plates $\frac{1}{4}$ in. and heavier, with most of the leading independent mills asking \$1 above this price.

Sheets.—There are still some soft spots in the market, but the disposition to shade prices is less pronounced than it has been and is confined to a few mills. In the Southwest, where values for some time have been notably irregular, conditions improve but slowly. The slight concessions still obtainable are limited principally to light black and galvanized sheets and corrugated roofing. Blue annealed sheets are said to be firmly held at ruling prices, and in some cases moderate advances are being obtained for prompt shipment. The general volume of business is increasing slowly.

Bars.—Iron bars are emerging from the demoralized condition which has characterized the market on this product for some time past. Prices have firmed up and are now fairly steady at 1.35c., which is an advance of \$2 a ton over the low point at the beginning of the month. Filling up of the steel bar mills has a tendency to divert some quick delivery business to the iron bar mills, which are still able to make prompt shipments. Specifications for steel bars are plentiful, and the mills of the leading interest are not offering shipment earlier than 30 days from receipt of order. Considering the heavy tonnage already booked in contracts, current orders continue to come in at a good rate. It is likely that the urgency for shipment will be greater after July 1, when the implement makers will have completed their inventories and are ready to begin work on fall stock. Steel bars are absolutely firm at 1.38c., Chicago, with the leading independent mills outside of this district asking 1.25c., Pittsburgh.

Merchant Pipe.—With the mills still able to make prompt delivery on orders for merchant pipe, there has thus far been no incentive for buyers to anticipate their wants beyond the demand of current requirements. That consumption is slowly increasing is evident from the fact that the aggregate tonnage is steadily growing. Prices are said to be firmly maintained.

Boiler Tubes.—The volume of business for last week was notably better than for some time, the orders taken being mostly from jobbers. While the general demand for locomotive tubes is light, fair sized orders have been placed by two Western lines, and one of the Northwestern roads is now in the market for tubes.

Cast Iron Pipe.—The only business reported as closed last week was included in a few small municipal lettings. Those taken by the United States Cast Iron Pipe & Foundry Company aggregated 1300 tons. St. Edwards, Kan., also awarded 400 tons to a general contractor. A large delegation representing the cast iron pipe founders attended the convention of the American Water Works Association, which was in session at Milwaukee all of last week. We quote per net ton, Chicago, as follows: Water pipe, 4 in., \$27.50; 6 to 12 in., \$26.50; 16 in. and up, \$25.50, with \$1 extra for gas pipe.

Metals.—The chief feature of interest in copper is the apparent scarcity of spot offerings from the smelters. Some sales for July delivery are being made, but transactions were mainly in August deliveries. The general demand from consumers holds about even with that of recent weeks, but prices are firmer. Lake copper is now reported strong at the market quotation. Spelter and lead have quieted down and there is little doing in these metals. Old metal

is decidedly more active than it has been for a good while owing to the fact that consumers are buying with greater liberality. Quotations are as follows: Casting copper, 13 $\frac{1}{2}$ c.; lake, 14 $\frac{1}{4}$ c., in car lots, for prompt shipment; small lots, $\frac{1}{4}$ c. to $\frac{3}{4}$ c. higher; pig tin, car lots, 31c.; small lots, 33c.; lead, desilverized, 4.50c. to 4.60c., for 50-ton lots; corrodizing, 4.75c. to 4.85c., for 50-ton lots in car lots, 2 $\frac{1}{4}$ c. per 100 lb. higher; spelter, 5.35c. to 5.45c.; Cookson's antimony, 10 $\frac{1}{2}$ c., and other grades 9 $\frac{1}{4}$ c. to 10 $\frac{1}{4}$ c.; sheet zinc is \$6.75, f.o.b. La Salle, in car lots of 600-lb. casks. On old metals we quote: Copper wire, crucible shapes, 13 $\frac{1}{4}$ c.; copper bottoms, 11 $\frac{1}{4}$ c.; copper clips, 12 $\frac{1}{2}$ c.; red brass, 12c.; yellow brass, 9 $\frac{1}{2}$ c.; light brass, 7c.; lead pipe, 4 $\frac{1}{4}$ c.; zinc, 4.75c.; pewter, No. 1, 23c.; tin foil, 23c.; block tin pipe, 26c.

Old Material.—The situation in old material seems to have resolved itself into a contest of endurance between the dealers and consumers; as a result the market is quiet though generally firm. Dealers are holding at prices which consumers decline to pay, and the latter being fairly well supplied for the present are not forced to come into the market. The effort of some of the leading consumers of old car wheels brought about a similar condition in this line. One such interest, which has been quietly buying old wheels for several weeks, is credited with having picked up between 20,000 and 25,000 tons. Several fair sized transactions in old wheels were concluded during the early part of last week, on the strength of which the asking prices of holders were boosted to a point that has effectually shut off further trading. This movement had its inception in the anticipation of prospective car orders from the Harriman and other lines. The limit of advance in old car wheels is fixed by cost of pig iron, which would draw a line not far above the current market for old wheels. The scrap market on the whole is practically stationary. The following prices are per gross ton, f.o.b. Chicago:

Old iron rails.....	\$17.00 to \$17.50
Old steel rails, rerolling.....	15.50 to 16.00
Old steel rails, less than 3 ft.....	15.00 to 15.50
Relying rails, standard sections, subject to inspection.....	22.50 to 23.50
Old car wheels.....	16.00 to 16.50
Heavy melting steel scrap.....	14.50 to 15.00
Frogs, switches and guards, cut apart.....	14.50 to 15.00
Mixed steel.....	11.50 to 12.00

The following quotations are per net ton:

Iron fish plates.....	\$16.50 to \$17.00
Iron car axles.....	18.75 to 19.25
Steel car axles.....	17.75 to 18.25
No. 1 railroad wrought.....	13.25 to 13.75
No. 2 railroad wrought.....	12.25 to 12.75
Springs, knuckles and couplers.....	13.50 to 14.00
Locomotive tires, smooth.....	14.75 to 15.25
No. 1 dealers' forge.....	11.00 to 11.50
Mixed busheling.....	8.00 to 8.50
Steel axle turnings.....	9.75 to 10.25
Machine shop turnings.....	8.00 to 8.50
Cast borings.....	6.00 to 6.50
Mixed borings, &c.....	6.00 to 6.50
No. 1 mill.....	7.00 to 7.50
No. 2 mill.....	6.00 to 6.50
No. 1 boilers, cut to sheets and rings.....	10.50 to 11.00
No. 1 cast scrap.....	13.75 to 14.25
Stove plate and light cast scrap.....	11.75 to 12.25
Railroad malleable.....	13.00 to 13.50
Agricultural malleable.....	11.00 to 11.50
Pipes and flues.....	10.25 to 10.75

Birmingham.

BIRMINGHAM, ALA., June 14, 1909.

Pig Iron.—The market is comparatively quiet, but with indications of more satisfactory conditions to all concerned. Specifications for early shipments favor an increase in the movement for the current month over that in May, while preparations are under way for the operation to some extent of practically all foundries in the district. A change in the attitude of buyers in all branches of the foundry trade is very perceptible. Within the past week the heretofore prohibitive price of \$12, Birmingham, for last quarter deliveries, has been received, and it has developed that of the latest round lot engagements for third quarter a significant portion represented speculative buying. There is at present a fair tonnage in warrant yards consisting of several brands, but such storing is the result of prohibitive asking prices and the warrants issued have been readily placed with financial institutions. The \$11.50 basis as applicable to last half deliveries is now being quoted by only one producer, and a number of recent efforts to secure lower figures on spot deliveries were unsuccessful. Lots of 500 and 450 tons of No. 2 foundry, sold at \$12, Birmingham, for last quarter delivery, are among the latest transactions. It is reported that 500 tons of 2.75 to 3 per cent silicon iron were sold for delivery within 90 days at \$12 per ton and in another case 500 tons of No. 2 foundry for August and September delivery brought \$11.50 per ton. The sale of 250 tons of gray forge for early shipment is reported at \$10.25, and \$9.50 was recently refused for approximately 2000 tons of mottled iron. Charcoal iron is quoted at \$19 and is firm at that figure.

Cast Iron Pipe.—Producers are apparently satisfied with conditions, and are making deliveries on contracts rather than

soliciting new orders. The manufacturers of soil pipe are receiving specifications more freely, and indications for the fall months are encouraging, but stocks are not reduced, and the active producing capacity is not normal. We quote water pipe as follows, per net ton, f.o.b. cars here: 4 to 6 in., \$25; 8 to 12 in., \$24; over 12-in., average \$22 to \$23, with \$1 per ton extra for gas pipe.

Old Material.—Dealers' quotations are unchanged, but the movement has been materially increased, with the demand covering a wider range. An addition has been made to active mill capacity, and rumors of further resumptions are current; yet it is understood that order books of local mills are comparatively light, and the permanency of any addition to the active capacity is questioned. Dealers' quote, as follows, per gross ton, f.o.b. cars here:

Old iron rails.....	\$13.50 to \$14.00
Old iron axles.....	14.50 to 15.00
Old steel axles.....	12.00 to 12.50
No. 1 railroad wrought.....	12.00 to 12.50
No. 2 railroad wrought.....	10.00 to 10.50
No. 1 country.....	9.00 to 9.50
No. 2 country.....	8.50 to 9.00
No. 1 machinery.....	10.50 to 11.00
Tram car wheels.....	10.50 to 11.00
Standard car wheels.....	12.00 to 12.50
Stove plate and light cast.....	8.50 to 9.00
Cast borings.....	4.00 to 4.50

Shook & Fletcher, Birmingham, Ala., brokers in pig iron, steel ore, coal and coke, who have had offices in the Woodward Building for some years, have moved to a more commodious suite, 827-830 Brown-Marx Building.

Pittsburgh.

PARK BUILDING, June 16, 1909.—(By Telegraph.)

Pig Iron.—The market has been quite active in the past week and some good sized sales have been made. A leading steel interest that bought 10,000 tons of Bessemer about a month ago has come into the market again and bought 5000 tons more for delivery over the next several months, at a price equal to about \$15.20 at Mahoning Valley furnace. We also note a sale of 4000 tons of malleable Bessemer iron at \$14.65, at Valley furnace; 1000 tons of basic at \$14.75, at Valley furnace, and 3000 tons of gray forge, to a pipe works in central Ohio, at the reported price of \$14.15, at Valley furnace. Prices on pig iron are very firm and slightly higher. We quote sand cast Bessemer iron at \$15.25; basic, \$14.75 to \$15; malleable Bessemer, \$14.75 to \$15; No. 2 foundry, \$15 to \$15.25, and gray forge, \$14 to \$14.15, all at Valley furnace, the freight rate to the Pittsburgh District being 90c. a ton.

Steel.—New demand for billets and sheet and tin bars is heavier than for some months, and specifications against contracts are coming in very freely. Prices are firm, and we quote Bessemer and open hearth billets at \$23, and sheet and tin bars at \$24 to \$25, Pittsburgh. Forging billets are held at \$25 to \$26, Pittsburgh.

(By Mail.)

At this writing (Tuesday afternoon) a meeting of delegates of the Amalgamated Association is being held in this city, to take such action as it may deem necessary on the announcement by the American Sheet & Tin Plate Company that commencing July 1 it will operate all its tin plate mills on an "open shop" basis. While it is pretty well settled that the association will recommend that the men resist the move of the American Sheet & Tin Plate Company, it is positively known that a very large number have quietly decided to continue at work and ignore any instructions to go on strike. Several leading independent tin plate manufacturers are quietly waiting to see the outcome of the contention before deciding what action they will take with reference to signing the Amalgamated scale for the year beginning July 1. The Amalgamated Association has everything to lose and nothing to gain in this contest, and it certainly stands to lose the present union mills of the American Sheet & Tin Plate Company. There is also some probability that it may lose some of the Western bar iron mills that now sign the scale, and the outlook for the future of this once strong labor organization is grave. Its membership has steadily decreased in the last five years. Conditions ruling in the steel trade in the first half of June have been uniformly satisfactory, a large amount of new business having been entered by the mills, while specifications against contracts have been coming in at a lively rate. The structural, sheet and tin plate, steel bar and pipe trades are especially active, and the mills are pushed practically to the limit to get out tonnage as fast as wanted. The coke trade is more active. Scrap has slowed down a little, probably due to the expected shutdown of a number of the leading mills on

June 30, pending settlement of the wage scales and to make necessary repairs. The only cloud on the horizon is the possibility of some labor troubles about July 1, but in view of the fact that the men have been idle more or less for the past two years and are anxious to continue at work it is not believed there will be any serious contentions. New orders and specifications against contracts for the first half of this month are fully up to the first half of May, and indications are that June will be fully as good a month in every way as last month.

Ferromanganese.—The starting up of so many idle steel plants, causing a heavy consumption of ferro, has had the effect of creating a firmer market. We now quote 80 per cent. foreign ferro at \$41 to \$41.50, seaboard, the freight to Pittsburgh being \$1.95 a ton. A sale of 50 tons of July and August delivery to a local consumer is reported at the first named price.

Ferrosilicon.—The market is firm and there is a fair amount of inquiry. We quote 50 per cent. for July and August delivery at \$62 to \$62.50, Pittsburgh, but note that ferrosilicon for spot shipment is very scarce, and in some cases has commanded as high as \$65 a ton and more.

Rods.—Most consumers are pretty well covered for some time ahead at about \$27 and are specifying very freely against their contracts, but there is very little new buying. We quote Bessemer, open hearth and chain rods at \$29, Pittsburgh.

Muck Bar.—A sale of 500 tons of high grade muck bar is reported on the basis of \$27, Pittsburgh, this being the first sale noted in this market for some time. The Kittanning Iron & Steel Mfg. Company, maker of muck bar, has started up its Rebecca Furnace again and is also operating its puddling and muck bar mills. We quote best grades of muck bar, made from all pig iron, at \$27, Pittsburgh.

Skelp.—A fair amount of new business is being placed, but most consumers made contracts some time ago, against which they are specifying very freely. Prices are firm and we quote: Grooved steel skelp at 1.30c. to 1.35c.; sheared, 1.40c. to 1.45c.; grooved iron, 1.50c. to 1.55c., and sheared iron skelp, 1.55c. to 1.60c., all for ordinary widths and gauges, f.o.b. Pittsburgh.

Steel Rails.—The report that the Lake Erie & Pittsburgh Railroad had placed an order with the Carnegie Steel Company for 30,000 tons of steel rails is untrue. This probably refers to the Gilmore & Pittsburgh Railroad, a Western line, which placed a contract with the Carnegie Company some time ago. The Carnegie mills received orders and specifications against contracts last week for 4602 tons of light rails, part of which is for export, and also booked some small orders for standard rails. It is said negotiations are pending with several leading roads which may result in some fair sized contracts being placed in the near future for standard sections. We quote standard sections at \$28, at mill, and light rails are as follows: 12-lb., \$28; 16, 20 and 25 lb., \$27; 30 and 35 lb., \$26.75; 40 and 45 lb., \$26, all in 250-ton lots, f.o.b. Pittsburgh. Over 250 tons and up to 500 tons, 60c. a ton less, and over 500 tons \$1 a ton less. Splice bars are 1.50c., at mill.

Plates.—Bids are being asked by the Harriman Lines on 4325 cars, of which 3325 are box cars with steel underframes, 500 flat cars and 500 all steel gondolas. This order is likely to be divided between the three leading steel car interests, and a part of the plates and shapes is likely to come to Pittsburgh mills. The Philadelphia & Reading order for about 7000 tons of plates and shapes has not yet been placed. General demand for plates is fairly active, and the leading plate mills are running closer to full capacity than for a long time. Prices are firm, and we quote $\frac{1}{4}$ -in. and heavier plates at 1.25c. for desirable orders, and 1.30c. to 1.35c., Pittsburgh, for small orders.

Structural Material.—Inquiries continue very active, and a very large amount of new work is being figured on. One or two local concerns are pretty well filled up and have declined recently to bid on several fair sized jobs. The largest local work in the market is the new steel bridge across the Ohio River at Sewickley, Pa., which will take about 5000 tons, bids for which have gone in and will be opened on July 1. The American Bridge Company has taken a five-story addition to the Pontchartrain Hotel at Detroit, 750 tons, also an addition to the Lafayette Hotel at Buffalo, 700 tons. The Jones & Laughlin Steel Company has taken the material for a 10-story building for the Elliott-Taylor-Wolfenden Company at Detroit, about 1000 tons, and the McClintic-Marshall Construction Company has taken 200 tons for the new residence of R. B. Mellon in this city, for which the Henry Shenk Company of this city has the contract. Prices are firm, the minimum of the market on beams and channels up to 15-in. being 1.25c. for large lots, and 1.30c. to 1.35c. for small lots.

Bars.—At a meeting of some of the leading bar iron mills on Wednesday of last week, prices of iron bars were advanced to the basis of 1.45c., Pittsburgh. Demand for both iron and steel bars is fairly active, and has been ac-

celerated by the prospective shut down of the mills that sign the Amalgamated scale, pending settlement of the new scale for the year beginning July 1. The mills in the Western Bar Iron Association have so far failed to come to any agreement with the Amalgamated Association on a new wage scale, and this is also true of the Republic Iron & Steel Company, which signs the scale for most of its Western mills. What action this company will take in the matter of treating with the Amalgamated Association for the year beginning July 1 has not yet been indicated. We quote steel bars at 1.20c. minimum, but note that several leading makers are holding firm at 1.25c. to 1.30c., and we quote iron bars at 1.45c., f.o.b. mill, Pittsburgh.

Tin Plate.—The Humbert plant of the American Sheet & Tin Plate Company at South Connellsville, Pa., is being made ready for operation. New demand for tin plate, and specifications against contracts are coming in very freely, practically all of the mills being filled up with business. Operations are being pushed to the utmost to accumulate as large stocks as possible, in view of the threatened shut down of some of the mills until the scale matter is arranged. It is stated the regular price of \$3.40 per base box for 100-lb. coke plates is being firmly held.

Sheets.—New demand for black and galvanized and roofing sheets is steadily expanding, and the mills are gradually increasing operations, now running closer to full capacity than for some time. Some mills that make a specialty of electrical sheets and other high grades for special purposes are filled up with orders for the next two or three months and are somewhat behind in shipments. The possibility of labor troubles on July 1 is causing buyers and consumers to hurry in orders and get stocks ahead. The American Sheet & Tin Plate Company is getting its Struthers, Ohio, sheet mill ready for operation and it will probably be started in a short time. Prices on sheets are firmer, but there is still some shading on the lighter gauges of black and galvanized and on roofing sheets. We quote one-pass box annealed black sheets, No. 28 gauge, at 2.20c., and No. 28, galvanized, at 3.25c., but these prices are being shaded on good orders. The regular price of painted roofing sheets, No. 28, is 1.55c. per square and of galvanized, No. 28, is 2.80c. per square, for 2½-in. corrugations, but these prices are also being shaded.

Hoops and Bands.—Orders are gradually increasing, but there is some unevenness in prices. We quote steel hoops at 1.50c. and bands at 1.15c. to 1.20c., steel card extras on the latter, but in exceptional cases and for desirable orders these prices are being slightly shaded.

Spelter.—The market is more active and prices have shown a sharp advance. We quote prime grades of Western spelter at 5.25c. to 5.30c., East St. Louis, equal to 5.37½c. and 5.42½c., Pittsburgh.

Railroad Spikes.—No large contracts have recently been placed by the railroads, but the Western roads are specifying very freely on orders placed some time ago. The market is firmer and several makers of spikes are asking higher prices. We quote railroad spikes at \$1.60 to \$1.65 for 5½ x 9-16 in., and \$1.70 to \$1.75, base, for the smaller sizes, in carloads and larger lots, 5c. per keg additional being charged for less than carloads.

Merchant Pipe.—Demand continues very active, and the pipe mills are busier at present and have more orders on their books than at any time in nearly two years. The Riverside department of the National Tube Company, at Wheeling, W. Va., is now in full operation on double turn and about 2500 men are being employed. The National Tube Company is now operating 10 out of 11 of its blast furnaces and is also running practically all of its larger pipe mills. This concern recently made a shipment of about 100 miles of 8 and 12 in. pipe on barge to New Orleans, the shipment representing about 100 carloads. The Booth & Flinn Company of this city is in the market for 10 to 15 miles of 2 and 3 in. pipe for delivery in New York, and the Natural Gas Company of West Virginia has placed a contract for 15 miles of 8½-in. casing. Prices are firm and the nominal discounts of 8½ and 5 off list on steel pipe and 7½ and 5 on iron pipe are being strictly held.

Boiler Tubes.—Demand is showing betterment, both for railroad and merchant tubes, but the mills are still considerably short of new orders to keep them fully employed. Regular discounts on tubes, given elsewhere in this issue, continue to be more or less shaded.

Iron and Steel Scrap.—A number of the leading mills expect to close down on June 30, pending settlement of the wage scales and to make repairs, and for this reason demand for scrap is not as active as it has been and prices are showing an easier tone. Three or four leading consumers have pretty well covered, and one local concern that is a heavy user of borings and turnings has recently held up shipments for a time. We quote heavy steel scrap for Pittsburgh, Follansbee, Leechburg, Sharon, Monessen and Steubenville delivery at \$15.75 to \$16, delivered, and note that two large consumers will not pay above \$15.50 and are not anxious to take in steel scrap at that price. On the other grades dealers quote about as follows: Cast iron borings, \$0.75 to \$10;

bundled sheet scrap, \$13 to \$13.25, at point of shipment; No. 1 cast scrap for foundry use, \$14.75 to \$15; No. 2, \$14; No. 1 railroad malleable, \$14 to \$14.50; sheet bar crop ends, \$17.50 to \$18; grate bars, \$12; rerolling rails, \$16 to \$16.50; low phosphorous melting stock, 0.04 and under, \$18.50 to \$19; old car wheels, \$16.25 to \$16.50; locomotive axles, \$22 to \$22.50; locomotive tires, \$17.50 to \$18; machine shop turnings, \$11.50 to \$12; iron rails, \$17 to \$17.50; iron axles, \$18.50 to \$19, all per gross ton, f.o.b. Pittsburgh, unless otherwise stated.

Coke.—We quote a better demand for both furnace and foundry coke, and prices are firmer. A leading coke interest has recently taken a contract for 15,000 tons of coke a month for the next three years on a sliding scale basis, the contract amounting to about 540,000 tons. More ovens are being steadily fired up in the Connellsville and other regions, and the output of coke last week in the Upper and Lower Connellsville regions was 287,570 tons, an increase of 500 tons over the previous week. Best makes of furnace coke for spot shipment are held at \$1.55 to \$1.60, and on contracts for last half from \$1.70 to \$1.75 is now quoted in net tons at oven. Best makes of 72-hr. foundry coke are held at \$1.80 to \$1.90 in net tons at oven for spot shipment, while on contracts from \$2.10 and as high as \$2.50 is being quoted.

The Petroleum Iron Works Company, with works at Sharon, Pa., builder of blast furnace work, steel tanks, stacks, riveted pipe and other plate work, has moved its Pittsburgh office from Room 401, Farmers' Bank Building, to 1220 in the same building. R. T. McCormick is manager of the Pittsburgh office.

Philadelphia.

PHILADELPHIA, PA., June 15, 1909.

The market maintains its full strength. Sales of pig iron have been comparatively heavy, although the bulk of the orders for foundry iron have been in small and moderate lots for delivery in the next three months. Prices on all classes of materials are stiffer, but show irregularity. Some producers have advanced asking prices, having about all the business they want at current prices, while others are still willing to accept the old figures. Concessions from recent market quotations, however, are about eliminated. A decidedly optimistic feeling prevails regarding the situation. The decision of several large Eastern and Western steel makers to restore recent reductions in wages, the increased railroad earnings and the generally satisfactory financial condition of the country are taken as very encouraging, and it is believed that a continued betterment will prevail in many lines, leading up to more normal conditions in the early fall months.

Billets.—While there have been no important transactions, the demand shows some betterment. Inquiries for fair sized lots for forward delivery are noted, but sellers ask from \$1 to \$2 advance over prompt prices for extended delivery, which buyers are not yet disposed to pay. The bulk of the business has been in small lots for prompt shipment, for which ordinary rolling steel is quoted at \$25 to \$25.50, delivered in this territory, rolling billets taking an advance of \$2 a ton, the usual extras applying for high carbons and special sizes.

Pig Iron.—Basic iron has been taken quite freely for third quarter delivery, and some for fourth quarter shipment has also been sold. One Eastern mill purchased about 17,000 tons for third quarter at \$15.50, delivered, while about 10,000 tons were taken at the same figure for shipment during the last quarter. Melters are still in the market for last quarter basic, but the majority of sellers now hold at \$16, delivered, for shipment in that period. Low grade irons have also been quite actively sold, one of the leading cast iron pipe founders in this territory taking 12,000 tons at \$15.25, delivered, for the third quarter. The higher foundry grades have only been moderately active. Sellers seem to be pretty firmly established at \$16.50, delivered, for Northern 2 X foundry, for delivery in the second and third quarter; a few who are pretty well sold up ask 25c. advance for third quarter, although the majority ask this advance for fourth quarter shipment. Southern iron has not been very active; transactions have been in small lots, as a rule, at full prices. A fair volume of business has been done in Virginia foundry irons. The purchases are generally small, however, and for fairly prompt delivery, at full prices, which are being firmly maintained. A somewhat better demand for forge iron is reported and sales aggregating about 5000 tons at \$15.25, delivered, are reported. The sellers have now advanced their prices 25c. a ton. Low phosphorus iron shows a little more activity. Sales of 1200 tons for Western shipment at \$19.50, delivered in this territory, are reported, while small lots for nearby delivery have sold at \$20, delivered. The general situation in the iron market is strong, the Eastern Pig Iron Association, which met in this city in the week, reporting conditions as satisfactory. Orders received since the last meeting have increased slightly, while stocks on the fur-

nace banks show a decline of several thousand tons; in fact, the amount on hand represents less than two days' run of the association furnaces. Inquiries are reported as coming out quite freely and melters are more urgent in their demand for prompt delivery. Prices are very firm, and it is believed that sufficient business will continue to develop to fully maintain the present level, which for prompt and third quarter delivery in buyers' yards, eastern Pennsylvania and nearby points, range for standard brands as quoted below:

Eastern Pennsylvania, No. 2 X foundry.	\$16.50 to \$16.75
Eastern Pennsylvania, No. 2 plain.	16.00 to 16.25
Virginia, No. 2 X foundry.	16.50 to 16.75
Virginia, No. 2 plain.	16.25 to 16.50
Gray forge.	15.25 to 15.50
Basic.	15.50
Low phosphorus.	19.50 to 20.00

Ferromanganese.—Greater activity is noted, consumers showing more disposition to cover for the first half of next year, and sales of two lots of several thousand tons for Western shipment, as well as some smaller tonnages for delivery in this territory, have been made at \$42, f.o.b. Baltimore, for such delivery. Several moderate sales for shipment during the last half of this year have also been made at \$41, f.o.b. Baltimore.

Plates.—Some 8000 to 10,000 tons are being inquired for by the car builders, a large tonnage of boat and marine boiler steel is also being asked for, and the trade feels very much encouraged as to future business. There is a decidedly better demand for moderate tonnages and specifications are heavier. An order for 1000 tons of tank plates was booked by one of the Eastern mills, while several large lots of plates for bridge work have also been placed. Prices, while no higher, are very firm, concessions from recent quotations being entirely eliminated. For prompt shipment 1.45c. to 1.55c. is still named for ordinary plates delivered in this territory, the usual extras applying.

Structural Material.—While no heavy contracts have been placed during the week, there has been a very satisfactory volume of miscellaneous business and mills in this territory continue pretty fully engaged. Several pretty fair sized contracts are under consideration, while bids will be opened to-day for the work on the Ninth street elevated for the Philadelphia & Reading Railway. Prices for plain material are being well maintained, 1.45c. to 1.55c., according to specification, being quoted for deliveries in this territory.

Sheets.—Orders come out somewhat more freely, and the general tone is stronger. Transactions are largely for moderate lots for prompt shipment, although consumers would place orders for tonnage if makers would accept business for forward deliveries at present prices, which for prompt delivery in this territory range as follows: Nos. 18 to 20, 2.40c.; Nos. 22 to 24, 2.50c.; Nos. 25 and 26, 2.60c.; No. 27, 2.70c.; No. 28, 2.80c.

Bars.—The market shows more strength, and a number of mills have advanced prices of refined iron bars. Orders come out more freely, but there is no disposition to load up at the present level. The advance of \$1 a ton on steel bars is being maintained by some mills, although business can still be done at the former basis. For prompt delivery leading makers quote refined iron bars at 1.45c. to 1.50c., delivered in this territory. Steel bars range from 1.35c. to 1.45c., delivered.

Coke.—The demand is quieter, blast furnaces having pretty generally contracted for their supply for the last half of the year. A moderate volume of business in foundry coke is reported, covering, in some cases, requirements during the balance of the year. Prices are unchanged, but a shade firmer, the following quotations being named for delivery in this territory:

Connellsburg furnace coke.	\$3.90 to \$4.10
Foundry coke.	4.35 to 4.50
Mountain furnace coke.	3.50 to 3.70
Foundry coke.	3.80 to 4.10

Old Material.—Sales have been rather small during the week, buyers awaiting allotments of the railroad lists, recently bid upon, and which, it is understood, brought comparatively good prices. Transactions in heavy melting steel have been light, but the business done was at slightly higher figures. Very little is being offered by sellers, who are inclined to hold for higher prices. Prices in most instances remain stationary, although slight advances are shown in heavy melting steel and low phosphorus scrap. Quotations, while to some extent nominal, range about as follows for delivery in buyers' yards, eastern Pennsylvania and nearby points:

No. 1 steel scrap and crops.	\$16.00 to \$16.50
Low phosphorus.	20.00 to 20.50
Old steel axles.	20.50 to 21.50
Old iron axles.	22.50 to 23.50
Old iron rails.	19.50 to 20.50
Old car wheels.	15.00 to 15.50
Choice No. 1 R. R. wrought.	18.00 to 18.50
Machinery cast.	15.00 to 15.50
Railroad malleable.	14.00 to 14.50
Wrought iron pipe.	15.50 to 16.00
No. 1 forge iron scrap.	13.00 to 13.50
No. 2 light iron.	9.00 to 9.50
Wrought turnings.	12.50 to 13.00
Stove plate.	12.00 to 13.00
Cast borings.	10.50 to 11.00
Grate bars.	13.50 to 14.00

Cincinnati.

CINCINNATI, OHIO, June 16, 1909.—(By Telegraph.)

Conditions in the finished material market are quite satisfactory here, with a general stiffening all along the line. Old material is not so strong as last week and sales are restricted, customers apparently balking at the rapid advance. Both Northern and Southern furnace companies have, in the main, well filled order books, and shipping orders accumulating are tightening the lines on sales agents, while the low priced iron has been withdrawn. The week has opened with pig iron inquiries of a very satisfactory nature from pipe companies, car builders and jobbing foundries. The machine tool interests are so well occupied that 55 hr. a week is the rule, and skilled labor is being placed as rapidly as it can be secured.

Pig Iron.—The last three days of last week saw some excellent contracts closed in this territory, and the opening of the current week has been strong, with Southern No. 2 foundry on an \$11.50 basis, while Northern iron is firm at \$14.50, Ironton. Forge iron is still in active demand, and the price is rather firm at \$10.50 to \$10.75, Birmingham. The largest pipe interest is in the market for 2000 tons of low manganese; otherwise No. 4 foundry or forge for early delivery and probably to the Addiston, Ohio, plant. One foundry company wants 500 tons of Northern No. 3 and Southern No. 2, divided about equally. The American Car & Foundry Company is buying a little iron from time to time for delivery among its smaller plants. One Birmingham District producer is reported to be practically out of the market, and sold up until fall, and while \$11.50, Birmingham, is the ruling price on No. 2 foundry iron, the number of furnaces willing to accept that price for even third quarter business is limited. The majority are asking \$12, which is the quoted price for last quarter business. Northern Indiana and Ohio concerns have been in the market for considerable malleable iron, the greater part of which is said to have been bought around \$14.50, Ironton. Some basic has been sold from this territory into Pittsburgh. High silicon irons are stationary in price, on the basis of \$18.50 for 8 per cent. iron at Jackson Furnace. A disposition to throw a considerable resale iron on the market at a slight advance over \$11.50 seems to have been abandoned, for sales agents of standard brands are not encountering this competition this week. Consumers are hurrying shipments of recently purchased iron, and the spot market has perceptibly improved in tone, although such purchases are in the main in small lots as a rule. Local jobbing foundries still have a good amount of iron bought during the early November bargain period, but the rapidly improving condition of the machine tool trade and general machinery will soon send this class of buyers into the market. For prompt shipment and delivery over the remainder of June based on a freight rate of \$3.25 from Birmingham and \$1.20 from Ironton, Ohio, we quote f.o.b. Cincinnati as follows:

Southern coke, No. 1 foundry.	\$15.00 to \$15.50
Southern coke, No. 2 foundry.	14.50 to 15.00
Southern coke, No. 3 foundry.	14.00 to 14.50
Southern coke, No. 4 foundry.	14.00
Southern coke, No. 1 soft.	15.00 to 15.50
Southern coke, No. 2 soft.	14.50 to 15.00
Southern coke, gray forge.	13.75 to 14.00
Ohio Silver, 8 per cent. silicon.	19.70
Lake Superior coke, No. 1.	15.95 to 16.20
Lake Superior coke, No. 2.	15.70
Lake Superior coke, No. 3.	14.95 to 15.20
Standard Southern car wheel.	22.25 to 23.25
Lake Superior car wheel.	21.75 to 22.75

(By Mail.)

Coke.—Conditions in the coke trade are reported quite satisfactory by the agents. The movement is good and some contracting in foundry grades is noted. Connellsburg 72-hr. foundry for delivery over the last half is quoted at \$2 to \$2.25 and for 12 months \$2.15 to \$2.35 is about the range. The little spot business done is at about \$2, although some choice grades are bringing \$2.25. Wise County foundry coke is selling at \$2 to \$2.25 on contract, and spot business is bringing \$2 to \$2.10. Very little contracting is noted in this district on furnace coke, but some is reported in Pittsburgh territory.

Structural Material.—Activity in concrete construction, in which Cincinnati is the pioneer in the central States, continues unabated, and twisted steel bars are, therefore, in greater demand than ordinary shapes. The chief contract in sight in the city proper is the new branch exchange for the Bell Telephone Company, to be located at Catherine and Harvey avenues, which will require about 200 tons. Little effort is being made to solicit business by the leading interest or independent mills, and current small orders are filled subject to delay at an average price of 1.35c., Pittsburgh, although one large interest is still asking 1.40c.

Bars and Sheets.—Orders of modest size are booked at 1.25c., Pittsburgh, on steel bars, and automobile interests are still heavy buyers. One western Pennsylvania interest is unwilling to contract for future delivery because of congested condition at the mills. Iron bars are quoted at 1.30c. to 1.35c., Pittsburgh, although it is reported that these prices

have been shaded by small independent producers in this district. Uncertainty about the adjustment of the bar iron scale has brought some orders for early shipments from consumers and jobbers. On sheets the leading interest has booked an immense business in this market, and the independents, particularly those making special ties, have well filled order books. The prices quoted at Pittsburgh are asked, but considerable shading is still found on black sheets, No. 28 gauge and No. 28 galvanized, also on painted roofing sheets.

Old Material.—Dealers are not inclined to become excited over the recently reported buying of melting steel and No. 1 cast, but are accumulating stock steadily with a firm belief in last half possibilities. There are no changes in prices, and some dealers admit a material falling off in inquiry and sales during the week. We quote dealers' asking prices f.o.b. cars Cincinnati as follows:

No. 1 R. R. wrought, net ton.....	\$14.50 to \$15.00
Cast borings, net ton.....	6.75 to 7.25
Heavy melting steel scrap, gross ton.....	13.50 to 14.50
Steel turnings, net ton.....	9.00 to 9.50
No. 1 cast scrap, net ton.....	13.50 to 14.00
Burnt scrap, net ton.....	9.50 to 10.50
Old iron axles, net ton.....	17.50 to 18.00
Old iron rails, gross ton.....	15.00 to 15.50
Old steel rails, short, gross ton.....	13.50 to 14.00
Old steel rails, long, gross ton.....	13.50 to 14.00
Relaying rails, 56 lb. and up, gross ton.....	21.50 to 22.00
Old car wheels, gross ton.....	14.50 to 15.00
Low phosphorus scrap, gross ton.....	14.00 to 14.50

San Francisco.

SAN FRANCISCO, CAL., June 9, 1909.

In finished products a number of new inquiries are coming up, and with several projects under way which will require large quantities of material the outlook for the remainder of the summer is fairly encouraging. Aside from municipal requirements of structural material and cast iron work in connection with the fire protection system, individual orders are generally of moderate proportions. Quite a heavy tonnage of bars has been booked in the last few weeks by the larger interests, and the jobbing trade in this line is unusually active, though local merchants are making low prices on small lots. A similar condition prevails in merchant pipe, jobbing prices on which are rather irregular. Numerous small inquiries are still coming up for cast iron pipe, with one or two transactions of some importance keeping the tonnage up to the average. Plates are in fair demand, and local sheet interests report a marked increase of activity. The machinery market is in a better position than for some time past, though orders from several important interests on the coast have so far been of small volume. Several orders have been received from the Hawaiian Islands and the Orient, and some logging machinery is being shipped to the Philippines from the Northern ports.

Structural Material.—Some large orders for shapes have been placed with Eastern interests by local fabricators, though most of the purchases have been for work on hand or in immediate prospect. The local shops have a far heavier volume of business than was the case last summer, and the largest local fabricator is working at about full capacity. The San Francisco building record for May shows a slight decrease from the month preceding, the total of contracts being \$3,029,600. A contract of some importance will be awarded this week in connection with the San Francisco harbor work, and the American Bridge Company has just taken a contract for 3500 tons for the City and County Hospital in this city. The project for the Prager Building, 1100 tons, has again been put off, but will probably be carried out by the end of the year. Contracts for the Behlow Estate Building, 400 tons, and the St. Mary's Hospital, 600 tons, have been awarded to Milliken Bros. receivers. A contract for 100 tons for the Beck Hotel was also let this week. The Oakland Y. M. C. A. Building will be figured on as soon as the plans are completed. Preliminary arrangements are being made for the erection of a new \$1,000,000 City Hall and Hall of Justice in Oakland. Nothing has been heard of the St. Francis Hotel addition for some time, but it is expected to come up this summer.

Pig Iron.—Local foundry requirements are increasing slowly. Requirements of cast iron columns for structural purposes are somewhat larger. Inquiries for machinery castings of various descriptions are much more numerous, and most of the foundries are operating on a larger scale. Several local interests are bidding on a large hydrant contract for the city. The anticipation of increased business, however, has not yet led to any general buying movement on the part of the foundries. There is a heavy tonnage in the local yards and warehouses, in addition to stock en route to this coast by sea. Buying at the moment is limited to small lots. Prices are irregular. A sale of 4 to 5 per cent. silicon English iron was reported recently at \$22.50, ex-warehouse. Several moderate lots of foreign iron have arrived this month, amounting to about 1800 tons.

Coke.—The market is by no means active and prices remain unchanged. The arrivals in the last two weeks have amounted to about 10,000 tons.

Cast Iron Pipe.—Few orders of any moment have been booked, the most important being for the Oakland salt water system, taken by the United States Cast Iron Pipe Company. Cotton Bros., who received the contract for the first section of the system some time ago, have secured the second contract and have placed the order. Aside from this a good many small orders have come in. The water and gas companies in the smaller towns now show a disposition to buy. The matter of a high pressure system is being agitated at Spokane, Wash. The Imperial Gas Company, which is installing a plant at Imperial, Cal., is now negotiating for cast iron pipe, comprising about 20 miles of various sizes. The gas company at Vallejo, Cal., expects to replace its old mains in the near future. The old system was steel pipe and is now in very bad condition.

Merchant Pipe.—Jobbing prices here are rather irregular, some of the local merchants having made a radical cut. The smaller buyers are now taking an active interest in the market, and current business is fully as large as last month. The jobbers also continue to purchase freely, though they are not anticipating future needs to any great extent. Several new line projects are gradually taking shape, and shipments to the oil district will probably be much heavier during the second half. The Midway & Maricopa Water Company, capital \$500,000, expects to complete a water line through the districts named by the end of the year. Pipe has been ordered for a 5-mile line in the McKittrick field.

The plans of the Pacific Coast Steel Company, incorporated last month, are not yet fully developed, but the first building of the South San Francisco plant is about complete, and much of the machinery is on the ground. The company expects to have a rolling mill in operation by the end of the year, and ultimately to put in a structural plant.

A gas engine works is being established at Clovis, Cal.

The San Francisco Casting Company has been incorporated in San Francisco, with a capital stock of \$1,000,000, by F. J. Fowler, S. S. Herrick, H. C. Macauley, Henry Martens, H. C. Banks and J. A. McGregor.

A special meeting of stockholders of the Pacific Jupiter Steel Company will be held this week.

The Southern Pacific is erecting a large boiler shop at the West Oakland yards. It will be completed in July, and will be equipped with the largest steam hammers on the Coast. It is stated that more shop room will be provided in the near future, owing to the rapid increase of traffic.

The contract for constructing the large naval dry dock at Pearl Harbor has been awarded to the San Francisco Bridge Company for \$1,760,000.

Buffalo.

BUFFALO, N. Y., June 15, 1909.

Pig Iron.—The market continues to improve in tone, with a fairly steady buying movement. Furnacemen are now refusing offers which a short time ago would have been accepted. The feature of the market in this district is the unusually heavy Eastern shipment via the Erie Canal for New England and Hudson River Valley points, New York and Brooklyn, to fill contracts which will aggregate exceedingly large tonnages during the season. The market is also commencing to feel the increased inquiry from railroad shops, both for foundry grades and malleable, on account of preparations for additions to motive power and car equipment for the expected large crop movement. We quote as follows for current and third quarter delivery, f.o.b. Buffalo :

No. 1 X foundry.....	\$15.25 to \$15.75
No. 2 X foundry.....	14.75 to 15.25
No. 2 plain.....	14.50 to 15.00
No. 3 foundry.....	14.25 to 14.75
Gray forge.....	14.25 to 14.50
Malleable Bessemer.....	15.00 to 15.50
Basic.....	15.50 to 16.00
Charcoal.....	19.50 to 20.00

Finished Iron and Steel.—The week's orders in steel bars, plates and shapes have been large and specifications against contracts continue to come in very freely, so that deliveries from mills are becoming more and more extended. Considerable new business is being placed at the higher prices which most of the independent companies put into effect during the past two weeks. One of the large interests declined this week to book a heavy tonnage offered on the basis of \$1.20 for bars and \$1.30 for plates, Pittsburgh, specifications to cover the remainder of the year. Railroad material is being ordered more freely and structural shapes are feeling the effects of numerous building projects which are developing. The American Bridge Company has been awarded the contracts for 750 tons structural for the addition to the Lafayette Hotel here and for 450 tons for the new Y. C. M. A. Men's Hotel. Bids will be received this week for steel for the Granger & Co. warehouse, 600 tons, and for the addition to the Buffalo Realty Company's building, 300 tons. Specifications will soon be issued for the International Railway Company's office building, requiring a like amount.

The Buffalo sales department of the leading interest has closed contract for 3000 tons of bridge material for export. The Lackawanna Steel Company is operating its rail mill on double turn, commencing Monday of this week.

Old Material.—The market is somewhat easier on some lines, particularly heavy melting steel, the local consumers being well supplied for the time being. On the other hand, steel and iron axles, iron rails and railroad malleable scrap are more in demand and are somewhat higher. No. 1 cast scrap is also in good demand. We quote dealers' asking prices per gross ton, f.o.b. Buffalo as follows:

Heavy melting steel scrap.....	\$14.75 to \$15.25
Low phosphorus steel scrap.....	19.00 to 19.50
No. 1 railroad wrought.....	16.00 to 16.50
No. 1 railroad and machinery cast scrap.....	15.00 to 15.50
Old steel axles.....	19.00 to 19.50
Old iron axles.....	20.50 to 21.00
Old car wheels.....	15.00 to 15.50
Railroad malleable.....	14.50 to 15.00
Boiler plate.....	12.50 to 13.00
Locomotive grate bars.....	12.00 to 12.50
Pipe.....	12.00 to 12.50
Wrought iron and soft steel turnings.....	9.00 to 9.50
Clean cast iron borings.....	7.50 to 8.00
No. 1 busheling scrap.....	13.00 to 13.50

Cleveland.

CLEVELAND, OHIO, June 15, 1909.

Iron Ore.—Although some ore has been sold and a few inquiries are still pending, the market has been less active in the past week. A good deal of the buying has been by consumers who were anxious to get certain ores of which the supply is limited. While a large tonnage has already been sold, many furnace interests do not appear to be ready to buy yet, and are showing no interest in the market. The comparative inactivity of the pig iron market is not offering encouragement for the buying of ore. Ore shipments have increased, and the June movement will be considerably larger than that of May. Nearly all the ore is being sent direct to the furnace yards, but since the opening of navigation dock shipments have been very light. No change has developed in the lake strike situation. Vesselmen are having little trouble in getting all the men needed to operate boats, and more tonnage is in commission than is needed at the present time. Ore prices at Lake Erie docks, per gross ton, are as follows: Old range Bessemer, \$4.50; Mesaba Bessemer, \$4.25; old range non-Bessemer, \$3.70; Mesaba non-Bessemer, \$3.50.

Pig Iron.—The market continues dull, but prices are firm. No sales of any size are reported for delivery in this territory and inquiries are scarce. A local interest reports the sale of two 750 ton lots of foundry iron in the Pittsburgh District and several smaller lots, most of the sales being on the basis of \$14.75, Valley furnace, for the last half. The sale of 1000 tons by a Valley interest is also reported in the Pittsburgh District. Prices in southern Ohio appear to be comparatively weak. A northern Ohio interest quoted \$14.50 on an Ohio inquiry for No. 2 foundry for shipment to a point where the freight rate was practically the same as from the southern part of the State, and did not get the order. The melt in this district has remained about stationary for some time. While the present production does not appear to exceed the consumption, it is equal to the demand and furnaces having stockpiles are not reducing them very rapidly. Foundry iron for prompt shipment is being offered at prices lower than held for the last half, but the demand for spot iron is quite limited. Among the new inquiries is one from Erie, Pa., for 300 to 500 tons of Nos. 2 and 3 foundry iron for the third quarter and 500 to 1000 tons for the fourth quarter. Local furnaces are holding firmly to \$15 for No. 2 foundry for outside shipment for the last half. We quote, delivered, Cleveland, for the last half, as follows:

Bessemer.....	\$15.90 to \$16.15
Northern foundry, No. 1.....	15.75 to 16.00
Northern foundry, No. 2.....	15.25 to 15.50
Northern foundry, No. 3.....	14.75 to 15.25
Southern foundry, No. 2.....	15.60 to 16.10
Gray forge.....	14.25 to 14.50
Jackson County silvery, 8 per cent. silicon.....	20.05

Coke.—A few small contracts for 72-hr. Connellsburg foundry coke was closed in the week for delivery during the year from July to July, at \$2.15, at oven. Sales were also made for the balance of the year at \$2. For delivery during the last half we quote \$2 to \$2.25. Furnace coke is quiet. We quote standard Connellsburg furnace coke at \$1.55 to \$1.65 for spot shipment and \$1.70 to \$1.75 for the last half.

Finished Iron and Steel.—The volume of specifications continues heavy, the most of the business being in steel bars and structural material. With delayed deliveries consumers are anticipating requirements. Mills are getting further behind on deliveries. Some of the mill agencies are practically out of the market for the present, being unable to fill orders for early shipment and unwilling to take contracts for future delivery. The earliest delivery now promised on steel bars is from four to five weeks. Consumers are so well under contract that there is very little new steel bar business coming out, and not much in other lines, although some

structural consumers are inquiring for additional tonnage. The leading interest is still quoting steel bars at 1.20c., Pittsburgh, but the independent mills are holding firmly to 1.25c. Plates and shapes are firm at 1.30c., Pittsburgh, and one mill is not quoting under 1.35c. Structural orders continue to come in freely on contract, but not much new work is coming out. The Forest City Steel & Iron Company, Cleveland, has taken the contract for a new factory building to be erected by the Cleveland Worsted Mills Company. This will require 1000 tons. It has been decided to make the Brown Building, in this city, 16 instead of 5 stories, increasing the steel required from 1300 to 3000 tons. This contract has been finally given to the Interstate Engineering Company, Bedford, Ohio. The steel has not been placed. Plans have been approved for the Cleveland Athletic Club Building, on which it is expected bids will be received soon. Heavy specifications are coming from the New York Central lines for bridge work west of Buffalo. The demand for forging billets shows an improvement, a number of orders for one and two car lots being placed during the week. A northern Ohio shop has an inquiry out for 500 tons of tank plates for early delivery. Sheets are only fairly active, and while prices are a little firmer concessions are being made on good sized lots. While the demand from large consumers is good, orders from the smaller users are not very plentiful. The demand for iron bars continues to show an improvement and prices are firmer. One large producer has advanced its price to 1.40c., Pittsburgh, and local mills are holding more firmly to 1.30c., Cleveland, although a concession of \$1 a ton might be made on a desirable order. The demand for light rails is better, and now that mills are holding for better prices makers of rerolled rails have again become a factor in the market, quoting prices slightly lower than those of mills making new rails.

Old Material.—Buying has fallen off and the market has been very dull and weaker, although quotations remain about stationary. The recent advance in prices resulted largely from bidding up dealers who had sold short. They are now covered and are unwilling to pay recent prices. Yard dealers are not worried over the condition of the market, but are holding on for better prices. Scarcity of old car wheels has resulted in an advance of 50c. a ton. Dealers' prices per gross ton, f.o.b. Cleveland, are as follows:

Old steel rails.....	\$15.00 to \$15.50
Old iron rails.....	16.50 to 17.00
Steel car axles.....	19.00 to 19.50
Old car wheels.....	15.00 to 15.50
Heavy melting steel.....	14.00 to 14.50
Relaying rails, 50 lb. and over.....	21.50 to 22.50
Agricultural malleable.....	12.50 to 13.00
Railroad malleable.....	14.00 to 14.50
Light bundled sheet scrap.....	8.00 to 8.50

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles.....	\$17.50 to \$18.00
Cast borings.....	7.00 to 7.50
Iron and steel turnings and drillings.....	8.50 to 9.00
Steel axle turnings.....	9.50 to 10.00
No. 1 busheling.....	12.00 to 12.50
No. 1 railroad wrought.....	13.50 to 14.00
No. 1 cast.....	12.50 to 13.00
Stove plate.....	10.50 to 11.00
Bundled tin scrap.....	10.00 to 10.50

Members of the metal trades joined with manufacturers in other lines in observing a holiday at Seattle, Wash., June 1, on the opening of the Alaska-Yukon-Pacific Exposition, which continues until October 16. The Seattle members acted as hosts for all outside members who came for the event. The attendance reached nearly 90,000 people, and would undoubtedly have passed 100,000 but for a severe rainstorm in the evening. Last week was the time of the annual Rose Festival in Portland, a celebration on which that city expends \$100,000. The Oregon members of the United Metal Trades especially invited manufacturers from a distance to be present Thursday, June 10, the day when James W. Van Cleave and James A. Emery were announced to speak in that city.

The Associated Foundry Foremen of Philadelphia and vicinity held their regular monthly meeting at the Odd Fellows' Temple, Philadelphia, June 8. Following the meeting a smoker and entertainment were given. The usual meetings of the association will be suspended for July and August, the next regular meeting being held on September 14.

The Maryland Steel Company, Sparrow's Point, Md., has started construction work on an open hearth plant to consist of five 50-ton furnaces covered by a building about 140 x 450 ft. The furnaces will be served by a Wellman charging machine and the usual equipment overhead for casting and stock handling.

Metal Market.

NEW YORK, June 16, 1909.

Copper.—Continuous slight declines in London, and the decidedly dull market here have created the impression that the advance established last week may not be maintained, and those who 10 days ago predicted that 14c. copper would shortly be seen are not supporting their views so emphatically now. There is so little buying that it is difficult to establish the actual price, but the weight of opinion is that 13.50c. is the market price for lake, and 13.37½c. for electrolytic. Any one coming into the market for a large amount of metal, however, might be obliged to pay 13.62½c. for lake and 13.50c. for electrolytic, as purchases made below these prices were in odd lots after considerable shopping about. Consumers seem to be so well supplied that they are not even making offers to buy to any extent. The monthly report of the Copper Producers' Association published last week showed total stocks on hand June 1 of 169,848,141 lb., or 13,349,932 lb. less than on May 1. An increase was shown in each preceding report of the year, or from 122,357,266 lb. January 1 to 183,198,073 lb. May 1. The production in May was 118,356,146 lb., the heaviest on record, and the deliveries for consumption, including exports, were 131,706,078 lb., against 112,656,121 lb. in April and 74,546,614 lb. in February, the low month of the year. Regardless of the decline in London prices, shipments abroad continue large, and so far this month 17,598 tons have been exported, which is something above 1000 tons a day. London quotations to-day were £59 for spot and £59 17s. 6d. for futures, a decline of about £1 in the last 10 days. L. Vogelstein & Co. report the following figures of German consumption of foreign copper during the months of January to April, 1909: Imports of copper, 49,323 tons; exports of copper, 2703 tons; consumption of copper, 46,620 tons, as compared with consumption during the same period in 1908 of 53,810 tons. Of the above quantity, 45,026 tons was imported from the United States.

Waterbury Average.—The Waterbury average for May was 13½c.

Pig Tin.—The announcement made by the American Sheet & Tin Plate Company that after July 1 all of its mills will be operated nonunion is of special interest to dealers in tin, and it is the general opinion that the threatened resistance on the part of the Amalgamated Association will bring about a fight that may last all summer. It is generally known that most of the tin plate mills have been producing heavily of late, and the fact that the leading interest has enough nonunion mills working to supply the summer trade gives the impression that prices will not advance. Little business was done in the week, and the slight fluctuations in prices established indicate there was but small incentive for trading. Prices established were as follows:

	Cents.
June 9.	29.50
June 10.	29.70
June 11.	29.45
June 14.	29.50
June 15.	29.50

In London export tin sold to-day for £135 and futures were quoted at £135 10s. The market was dull and most of the trading was purely speculative.

Lead.—While the market is firm, the demand has fallen off, although some sellers think that the slight spurt in buying of a week ago may be resumed. The American Smelting & Refining Company quotes 4.35c., but outside interests are asking and getting 4.40c.

Spelter.—There has been no change in prices and 5.50c. is generally quoted, although sales at 5.35c. are mentioned. Makers of sheet zinc, in keeping with the advance in spelter, have made their ruling price \$7 for 100 lb., which is a slight advance.

Antimony.—Hallett's is scarce, and while the ruling price is 7.50c., sellers declare that it will be hard to buy any great amount at that price. A 5-ton lot was sold in the week, however, at about 7.50c., which was a little less than the quotation made by most of the bidders. Cookson's can be had at 8.25c.

Old Metals.—The following dealers' selling prices represent the New York market:

	Cents.
Copper, heavy cut and crucible.	18.00 to 13.25
Copper, heavy and wire.	12.75 to 13.00
Copper, light and bottoms.	11.75 to 12.00
Brass, heavy.	9.50 to 9.75
Brass, light.	7.50 to 7.75
Heavy machine composition.	12.25 to 12.50
Clean brass turnings.	8.25 to 8.50
Composition turnings.	10.00 to 10.50
Lead, heavy.	4.15 to 4.20
Lead, tea.	3.85 to 3.90
Zinc scrap.	3.87½ to 4.00

Tin Plate.—It is not thought that the threatened trouble between the mills and the union will cause any change in prices, as there seems to be plenty of tin plate on hand, and independent interests and nonunion mills owned by the largest producer will be able to supply what is called for during the summer. Quotations for 100-lb. IC coke are \$3.64, New

York, and \$3.45, Pittsburgh, with a 5 per cent. rebate for large orders.

New York.

NEW YORK, June 16, 1909.

Pig Iron.—One of the leading melters in this district has again entered the market and has purchased a fair tonnage. Some business is also coming up from New England. The market is firm. We quote \$16.95 to \$17 for No. 1 Northern foundry, \$16.25 to \$16.50 for No. 2 foundry, and \$15.50 to \$15.75 for No. 2 plain, at tidewater. Alabama iron is quoted \$16.25 to \$16.50 for No. 1 foundry and \$15.75 to \$16 for No. 2 foundry.

Steel Rails.—Aside from the sale of 12,500 tons by the Lackawanna Company to the Northern Pacific system, no transactions of importance are reported. The order for 49,000 tons of rails for the Argentine Republic has been virtually placed with the U. S. Steel Products Export Company.

Ferroalloys.—Ferromanganese is quoted at \$41 to \$42. The scarcity of ferrosilicon and the light demand makes it rather hard to establish a price for spot shipment. We quote 50 per cent. at \$62, Pittsburgh.

Bars.—Only a moderate business is being done in bar iron. The consolidation of a few small Eastern mills is not significant so far as this market is concerned. On steel bars buyers covered their requirements up to October 1 and in a good many cases to the end of the year at the low prices made in April and early May, so that only small lot buying is looked for through the summer. We quote iron bars at 1.40c. to 1.45c. tidewater, and steel bars at 1.41c. tidewater.

Plates.—While local shipbuilding and repair yards have no large work, their recent inquiries have been for larger amounts than they have considered for a good many months, and there is some inquiry for boiler plates. We quote tank plates at 1.46c. tidewater.

Old Material.—The recent flurry in steel melting scrap, which was chiefly a development of the Pittsburgh and Chicago districts, has left that department of the market in an uninteresting state, and prices are nominal. The steel mills are taking practically nothing; from iron mills the demand is only slightly better. Foundry buying is by no means good, but, perhaps, cast scrap and stove plate are moving more freely than recently. Prices are unchanged. In the past week the Eastern offerings of three railroads were taken promptly, the mills securing a considerable share. We quote as follows per gross ton, New York and vicinity:

Old girder and T-rails for melting.	\$13.00 to \$13.50
Heavy melting steel scrap.	13.00 to 13.50
Relaying rails.	20.50 to 21.00
Old iron rails.	15.50 to 16.00
Standard hammered iron car axles.	19.00 to 19.50
Old steel car axles.	17.50 to 18.00
No. 1 railroad wrought.	15.50 to 16.00
Iron track scrap.	13.00 to 13.50
No. 1 yard wrought, long.	13.50 to 14.00
No. 1 yard wrought, short.	12.50 to 13.00
Light iron.	8.00 to 8.50
Cast borings.	8.50 to 9.00
Wrought turnings.	9.50 to 10.00
Wrought pipe.	12.50 to 13.00
Old car wheels.	14.50 to 15.00
No. 1 heavy cast, broken up.	13.00 to 13.50
Stove plate.	10.50 to 11.00
Locomotive grate bars.	10.50 to 11.00
Malleable cast.	14.00 to 14.50

Structural Material.—Activity in steel building continues at a good rate, and there are evidences of a slight improvement in prices secured by fabricators. The gain amounts to about the advance asked by the steel companies for plain material. In the past week the American Bridge Company booked from 6000 to 7000 tons, while other companies took about twice this tonnage. The American Bridge Company is low bidder on the third lot of elevated work for the Philadelphia & Reading Railroad at Philadelphia—4200 tons. The second lot, 2300 tons, was taken by Lewis F. Shoemaker & Co. The leading fabricator also took the contracts for the Utah Hotel at Salt Lake City, 3000 tons, and for the Denver Gas & Electric Company's office building at Denver, Colo., 1700 tons. Bids have gone in on a second Salt Lake City hotel calling for 2000 tons. It is now reported that the project for the new *Examiner* Building at San Francisco will be put through; about 2000 tons will be needed. The Chicago, Milwaukee & St. Paul Railroad is in the market for 12,000 tons of bridges for Wisconsin, Idaho and Montana. Two highway bridges are about to be bid on, one at Philadelphia on Passayunk road, 3500 tons, and the other at Sewickley, Pa., over the Ohio River, 6500 tons. In New York City new work keeps coming up. Bids have gone in on two piers, one in North River for the Pennsylvania Railroad, Pier 36, requiring 1400 tons, and the other for Pier 72, East River, 2100 tons. The American Bank Note Company is in the market for 4000 tons for a new plant in the Bronx, and bids have been asked on an addition to the Altman store at Fifth avenue and Thirty-fourth street, 1200 tons. The Hewitt-Bryce Building on Fourth avenue, 4000 tons, will probably be awarded to the

American Bridge Company. In the case of the new post office at the Pennsylvania Railroad Terminal, 9000 tons, the general contract has been awarded by the Government, but there is no decision as to the steel contract. Shipping orders to the mills are going in good volume, and in some cases there is considerable pressure for material. We quote beams and channels up to 15 in. at 1.41c., New York, on large contracts and 1.46c. in smaller quantities, mill shipments. Plain material cut to length is sold from stock at 1.70c. to 1.75c., New York.

Tin Plate Workers Decide to Strike.

PITTSBURGH, Pa., June 16, 1909 (*By Telegraph*).—The delegates from the sheet and tin plate mills of the American Sheet & Tin Plate Company that have been in session in this city for three days have decided to refuse to work after June 30. John Williams, secretary of the Amalgamated Association, gave out a statement as to the action taken at the conference, which reads as follows:

"The convention of the representatives of the sheet and tin mill lodges, held for the purpose of taking action on the declaration of the American Sheet & Tin Plate Company to run its plant non-union, has decided that the Amalgamated Association will resist all efforts to carry out that policy and will refuse to work after June 30, 1909, unless a satisfactory agreement is reached by that time."

The convention will be in session again on Wednesday to consider other matters of interest to the sheet and tin mill crafts. This means that 14 sheet and tin plants owned by the American Sheet & Tin Plate Company will shut down on June 30 unless the men decide to continue at work. There will be absolutely no change in the policy of the American Sheet & Tin Plate Company regarding these mills and after July 1 they will be operated on the "open shop" basis or not at all.

Incorporation of the Baldwin Locomotive Works.

Application was granted by Governor Stuart of Pennsylvania, June 3, for the incorporation of the Baldwin Locomotive Works, Philadelphia, to take over the business long conducted under the firm name of Burnham, Williams & Co. This business was founded in 1831 by Matthias W. Baldwin. With various changes from time to time in firm name and personnel, it has continued without interruption, and more than 34,000 locomotives have been built. The present partners are George Burnham, John H. Converse, William L. Austin, Samuel M. Vauclain and Alba B. Johnson. These will comprise the officers and Board of Directors of the new corporation. The capital of \$20,000,000, which the firm has hitherto had invested in the business, will be the amount of the capital stock of the new company. No stocks or bonds will be placed upon the market. The property of the company comprises the Baldwin Locomotive Works, Philadelphia, with a large branch at Eddystone, Pa., the two having a combined capacity of 2650 locomotives per annum. The company will also own the Standard Steel Works Company, manufacturer of steel tires, steel-tired and rolled steel wheels, steel and iron castings, forgings and springs, at Burnham, Pa. The transfer to the new company will be as of July 1, 1909.

The Piping Equipment at the Gary Works.—In an article in *The Iron Age* of February 25, 1909, page 631, describing the piping system at the Gary, Ind., plant of the Indiana Steel Company, the statement was made that the boiler feed lines were of wrought iron. This was an error on the part of the engineer who furnished the information. All the material used in this piping system was wrought steel. This correction is made in justice to the National Tube Company, Pittsburgh, which furnished the Best Mfg. Company all the steel pipe for this system.

Reports that the Shenango Furnace Company of Pittsburgh would build a new blast furnace at Sharpsville, Pa., are untrue. The company owns three blast

furnaces at Sharpsville, all of which are in operation now, and may possibly build another stack next year, but nothing will be done this year. The Shenango Steamship & Transportation Company, which recently took out a Pennsylvania charter with a capital of \$10,000, has increased its capital to \$250,000. This is a subsidiary interest of the Shenango Furnace Company.

The monthly meeting of the Engineers' Society of Western Pennsylvania was held in the Fulton Building, Pittsburgh, Tuesday evening, June 15. J. W. Henderson, foundry specialist, with the Gulick-Henderson Company, read a paper on "Economy in Cupola Melting." The subject was presented under the following heads: Relation of plant arrangement and equipment to economical melting, experiences in cupola practice, cupola linings, mixing by chemical analysis and probabilities for the advancement of the industry.

The second quarterly meeting and dinner of the Cincinnati branch of the National Metal Trades Association will be held at the Laughery Club, a famous down-the-river retreat. The programme promises many delightful surprises. There will be baseball games captained by Samuel Moyer of the Lunkenheimer Company and B. B. Quillen of the Cincinnati Planer Company. The members will go by automobile, and all will spend the night at the club, which has accommodations for 100.

The Earlston Furnace at Everett, Pa., owned by J. E. Thropp, which is to be entirely rebuilt for an output of 300 tons daily, will be equipped with a Ladd & Baker single skip hoist and a Baker-Neumann distributor of the latest design. The latter has been particularly successful with soft cokes, the discharge point of the stock being only 5 ft. above the furnace platform. The engineers are Ladd & Baker, Inc., Real Estate Trust Building, Philadelphia, Pa.

Another important industry to be located in the Calumet district, near Chicago, is that of the manufacture of oxygen for use in connection with the oxy-acetylene system of autogenous welding controlled by the Linde Air Products Company of Buffalo, N. Y. This company has secured a site at Forty-fifth street and Kenny avenue, East Chicago, upon which it will erect an extensive plant.

At Johnstown, Pa., the Cambria Steel Company announced last week that a readjustment of wages would be made, effective July 1. While not so stated, the announcement was taken to indicate the restoration of the 10 per cent. by which wages were reduced April 1. At Steelton, Pa., notice of a similar restoration was given by the Pennsylvania Steel Company and at Sparrows Point, Md., by the Maryland Steel Company.

The fourth blast furnace of the first unit of the Indiana Steel Company at Gary, Ind., has been blown in. The first furnace of the second unit of four furnaces can be completed ready to start in 30 days, and the other three could be completed in quick succession. Additional open hearth furnaces of the plant have been also started.

The Greenville mill of the Carnegie Steel Company at Greenville, Pa., which has been idle for a year and a half or more, is being put in readiness for operation, but as yet no date has been set for starting the plant. The output is steel bars and shapes.

Two more open hearth furnaces at the Ohio works of the Carnegie Steel Company, Youngstown, Ohio, will be started this week, making six out of 12 furnaces in operation.

No. 1 blast furnace of the Carnegie Steel Company at South Sharon, Pa., which had a slip about a month ago, has been repaired and put in blast, and all three furnaces at this plant are now in operation.

Iron and Industrial Stocks.

NEW YORK, June 16, 1909.

The stock market has quieted down in the past week and the daily volume of sales is now considerably less than the average for the preceding week, while the fluctuations are narrower. The shares of the United States Steel Corporation were comparatively dull in the latter part of last week, but somewhat more interest appeared on Monday and Tuesday, with net declines on the latter day amounting to $2\frac{1}{4}$ for the common and $1\frac{1}{4}$ for the preferred. It is cabled from Paris that the decision has been adverse to listing the Steel Corporation stocks on the Bourse, but it is understood dealings in these stocks will be in the coulisse, or unlisted department. The range of prices on active iron and industrial stocks from Thursday of last week to Tuesday of this week was as follows:

Allis-Chalm., com..	15 $\frac{1}{2}$ -16 $\frac{1}{2}$	Republic, com....	32 - 32%
Allis-Chalm., pref.	50 $\frac{1}{2}$ -54 $\frac{1}{2}$	Republic, pref....	106 $\frac{1}{2}$ -107 $\frac{1}{2}$
Beth. Steel, com..	29 $\frac{1}{2}$ -30 $\frac{1}{2}$	Sloss, com.....	83 - 83%
Beth. Steel, pref.	62	Sloss, pref.....	116 $\frac{1}{2}$ -117
Can., com.....	12 $\frac{1}{2}$ -13 $\frac{1}{2}$	Pipe, com.....	34 - 34%
Can., pref.....	83 $\frac{1}{2}$ -85	Pipe, pref.....	84 - 85
Car & Fdry., com..	56 - 57	U. S. Steel, com..	66 $\frac{1}{2}$ -69 $\frac{1}{2}$
Car & Fdry., pref..	117 - 117 $\frac{1}{2}$	U. S. Steel, pref..	124 $\frac{1}{2}$ -126 $\frac{1}{2}$
Steel Foundries..	46 $\frac{1}{2}$ -47 $\frac{1}{2}$	Westinghouse Elec. 84 $\frac{1}{2}$ -87 $\frac{1}{2}$	
Colorado Fuel..	43 $\frac{1}{2}$ -45 $\frac{1}{2}$	Chl. Pneu. Tool.....	25 $\frac{1}{2}$
General Electric..	159 $\frac{1}{2}$ -164 $\frac{1}{2}$	Am. Ship, com....	60 - 60 $\frac{1}{2}$
Gr. N. ore cert..	74 $\frac{1}{2}$ -75 $\frac{1}{2}$	Am. Ship, pref.....	110
Int. Harv., com..	84 - 86 $\frac{1}{2}$	Cambria Steel....	41 $\frac{1}{2}$ -42 $\frac{1}{2}$
Int. Harv., pref..	121 $\frac{1}{2}$ -122	Lake Sup. Corp....	26 $\frac{1}{2}$ -27 $\frac{1}{2}$
Locomotive, com..	61 - 61 $\frac{1}{2}$	Penna. Steel, pref..	109 $\frac{1}{2}$ -110
Locomotive, pref..	117 - 117 $\frac{1}{2}$	Warwick	9
Nat. En. & St. com..	17 $\frac{1}{2}$ -18 $\frac{1}{2}$	Crucible St., com..	9 $\frac{1}{2}$ - 9 $\frac{1}{2}$
Nat. En. & St. pref..	89 $\frac{1}{2}$ -92	Crucible St., pref..	71 $\frac{1}{2}$ -72 $\frac{1}{2}$
Pressed St., com..	43 $\frac{1}{2}$ -44 $\frac{1}{2}$	Harb.-W. Ref., com..	19 $\frac{1}{2}$
Pressed St., pref..	104 - 104 $\frac{1}{2}$	Harb.-W. Ref., pref....	85
Railway Spr., com..	44 $\frac{1}{2}$ -45 $\frac{1}{2}$		

Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 67 $\frac{1}{2}$, preferred 123 $\frac{1}{2}$, bonds 105 $\frac{1}{2}$; Car & Foundry common 55 $\frac{1}{2}$, preferred 116 $\frac{1}{2}$; Locomotive common 58 $\frac{1}{2}$, preferred 117 $\frac{1}{2}$; Steel Foundries common 48 $\frac{1}{2}$; Colorado Fuel 44; Pressed Steel common 42 $\frac{1}{2}$, preferred 104; Railway Spring common 43 $\frac{1}{2}$; Republic common 31, preferred 106 $\frac{1}{2}$; Sloss Sheffield common 82; Cast Iron Pipe common 34 $\frac{1}{2}$, preferred 86; Can common 12 $\frac{1}{2}$, preferred 82 (ex-dividend).

The E. I. du Pont de Nemours Powder Company of Wilmington, Del., is issuing through Harvey Fisk & Sons of New York \$2,000,000 of 4 $\frac{1}{2}$ per cent. 30-year gold bonds at 89 $\frac{1}{2}$ and accrued interest, all or any part of the issue being redeemable at 110 and accrued interest on any interest date. It is a part of an authorized issue of \$16,000,000, of which \$14,628,000, including the present offering, has been issued. Of the latter amount \$3,119,000 are in the treasury of the company and its subsidiary companies. There are also outstanding \$2,248,000 bonds of subsidiary companies secured on a relatively small amount of the company's property. The bonds are followed by \$15,642,444 5 per cent. cumulative preferred stock and \$28,078,732 common stock, on which $\frac{1}{2}$ per cent. dividends were paid in 1904, 3 $\frac{1}{2}$ per cent. in 1905, 6 $\frac{1}{2}$ per cent. in 1906 and 7 per cent. in 1907 and 1908. On June 15 a dividend of 2 per cent., or at the rate of 8 per cent. per annum, was paid. The business was started in 1802, and was incorporated in May, 1903. The company owns and operates 87 plants, and carries a complete insurance and depreciation system of its own, which has grown to the sum of \$1,384,611. The net earnings were \$4,438,701 in 1904, \$5,063,612 in 1905, \$5,332,802 in 1906, \$3,929,509 in 1907 and \$4,929,251 in 1908, the accumulated surplus to date being \$11,823,740.

The National Enameling & Stamping Company has issued \$3,500,000 of refunding first mortgage sinking fund 20 year 5 per cent. gold bonds, to take up \$750,000 bonds now outstanding and to pay off its entire floating indebtedness. A cumulative sinking fund of \$100,000 per annum is provided for, the bonds for the sinking fund to be drawn at 105 and interest. The mortgage provides that the liquid assets shall at all times be of an amount at least equal to the then aggregate debts of the company, including the outstanding bonds. F. A. W. Kieckhefer, president of the company, states that the net earnings covering a period of nine years have averaged \$1,219,649.00 per annum.

On August 2 the Pressed Steel Car Company, Pittsburgh, will anticipate the payment of \$500,000 of its outstanding first mortgage gold notes due February 1, 1910. These notes are a part of the \$5,000,000 issue created in February, 1901, maturing in annual installments of \$500,000.

The annual report of the Standard Screw Company shows that including interest amounting to \$2052.41, the total income was \$136,455.34, and after deducting Standard Screw Company expenses of \$42,807.04, the net was \$93,648.30 for the fiscal year ending May 31, 1909. The bond interest was \$11,300; special interest, \$8843.61, and dividends, \$269,514, leaving a net deficit for the year of \$196,009.31. W. B. Pearson, president, in his report stated that it has been necessary to draw on the surplus to keep up the dividends, but as the surplus was allowed to accumulate with that purpose in view he thinks that this can

only be construed as showing the wisdom of the conservative policy. The balance sheet of March 31, 1909, shows a surplus of \$696,303.32. There are outstanding \$2,000,000 of preferred stock, \$2,494,000 of common stock and \$224,000 of 5 per cent. debenture bonds.

At Trenton, N. J., June 14, the Court of Errors and Appeals affirmed the decision of Vice Chancellor Howell, who refused to enjoin the directors of the United States Cast Iron Pipe & Foundry Company from paying a dividend on the stock of the corporation on the allegation of Frank Bassett, a holder of common stock, that the corporation had not earned the dividend and that the directors were seeking to pay it out of the surplus.

The Sloss-Sheffield Steel & Iron Company's statement for the quarter ending May 31 (May estimated) shows a profit after deducting interest and taxes of \$304,777, an increase of \$75,903 over the corresponding quarter of 1908. The surplus for the quarter ending February 28, 1909, was \$340,602, and the total surplus June 1 was \$3,861,725.

Iron and Steel Bonds.

Chisholm & Chapman, 18 Wall street, New York, report the following quotations:

	Bid.	Asked.
Bethlehem Steel 1st ext. 5s, due January, 1926	..	89 $\frac{1}{2}$
Bethlehem Steel purchase money 6s, August, 1908	..	117 $\frac{1}{2}$
Buffalo Iron 5s, October, 1925	97	100
Buffalo & Susquehanna Iron 1st 5s, June, 1932	99 $\frac{1}{2}$..
Buffalo & Susquehanna Iron deb. 5s, January, 1926	95	98
Dominion Iron & Steel 5s, July, 1929	90 $\frac{1}{2}$..
La Belle Iron Works 1st 5s, December, 1923	99	99 $\frac{1}{2}$
Lackawanna Steel 1st 5s, April, 1923	101	..
Maryland Steel 1st 5s, February, 1922	101	..
Pennsylvania Steel 1st 5s, November, 1917	101	..
Pennsylvania & Maryland Steel 6s, September, 1925	110 $\frac{1}{2}$..
Republic Iron & Steel 1st 5s, October, 1930	100 $\frac{1}{2}$	101 $\frac{1}{2}$
Sloss Iron & Steel 1st 6s, February, 1920	107	..
Sloss Iron & Steel consol. 4 $\frac{1}{2}$ s, April, 1918	94 $\frac{1}{2}$	97
Jones-Loughlin 1st 5s, May, 1939	100 $\frac{1}{2}$	101 $\frac{1}{2}$

United States Steel Corporation.

Collateral Trust 5s, Series A, C, E, April, 1951	114 $\frac{1}{2}$	115 $\frac{1}{2}$
Collateral Trust 5s, Series B, D, F, April, 1951	114 $\frac{1}{2}$	115 $\frac{1}{2}$
Sinking Fund 5s, April, 1963	105 $\frac{1}{2}$	105 $\frac{1}{2}$
Union Steel 1st 5s, December, 1952	105	106
Claifton Steel 5s, 1908-1913	100	..
St. Clair Furnace 1st 5s, 1910-1939	100	..
St. Clair Steel 1st 5s, 1908-1926	100	..
Illinois Steel 5s, January, 1910	100 $\frac{1}{2}$..
Illinois Steel 5s, April, 1913	100 $\frac{1}{2}$..

All bonds quoted "and interest."

Dividends.—The Sloss-Sheffield Steel & Iron Company has declared the regular quarterly dividend of 1 $\frac{1}{4}$ per cent. on the preferred stock, payable July 1.

The Empire Steel & Iron Company has declared a semi-annual dividend of 3 per cent. on the preferred stock, payable July 1.

The American Iron & Steel Mfg. Company has declared quarterly dividends of 1 $\frac{1}{4}$ per cent. on the common and preferred stocks, payable July 1.

The Otis Elevator Company has declared a quarterly dividend of 1 $\frac{1}{4}$ per cent. on the preferred stock, payable July 15.

The Canadian Westinghouse Company, Ltd., has declared the regular quarterly dividend of 1 $\frac{1}{2}$ per cent., payable July 10.

The International Nickel Company has declared the regular quarterly dividend of 1 $\frac{1}{2}$ per cent., payable August 2, and an initial dividend of 1 per cent. on the common stock, payable September 1.

The Westinghouse Air Brake Company has declared the regular quarterly dividend of 2 $\frac{1}{2}$ per cent., payable to stockholders of record July 10.

The Standard Coupler Company has declared the regular semiannual dividend of 4 per cent. on preferred stock, payable June 30.

The Ingersoll-Rand Company has declared the regular semiannual dividend of 3 per cent. on the preferred stock, payable July 1.

The Canadian General Electric Company, Ltd., has declared the regular quarterly dividend of 1 $\frac{1}{4}$ per cent. on the common stock, payable July 1.

An effort is being made by the Central Freight Association to readjust rates on the shipments of steel and pig iron from Pittsburgh to the upper Mississippi River crossings and to points north of Peoria, Ill., so as to encourage industries in these districts. The Central Freight Association is composed of representatives of the railroads operating between Pittsburgh and Chicago. The matter was taken up at a meeting of the association in Chicago last week at which all Pittsburgh roads were represented. It is believed it will require several weeks to compile the new sheets.

It is probable that the furnace companies of Eastern Pennsylvania will restore wages of their men at an early date.

The Machinery Trade.

NEW YORK, June 16, 1909.

The demand for machinery the past week was not quite as brisk as was expected, following the steady expansion of trade in May; but the slight lull is thought to be only temporary and will be followed by renewed activity on the part of the large buyers. Some houses are now negotiating with prospective buyers of large quantities of machinery who will not be ready to close deals for some time, but these, with the important propositions before the general trade aggregate such an amount as to afford considerable encouragement as to trade in the near future. It is considered only natural that a slight lull should follow a substantial betterment and merchants see nothing to indicate other than an upward trend. Since our last report no large orders or inquiries were reported. Business seems to be almost wholly made up of small and fair sized lots of tools from scattered sources, no one branch of trade contributing a noticeable amount. The railroads continue their policy of retrenchment and it looks now as if they will do nothing until after the close of the month in the way of purchasing machinery. They are, however, proceeding with construction work previously outlined and some new work has been announced that will entail a considerable expenditure of money. In the West a substantial list of machine tools is about to be issued by the Pullman Car Company for its new shops at Pullman, Ill. This list, it is understood, covers about \$100,000 worth of tools.

The Erie Railroad, it is understood, is negotiating with the American Locomotive Company for the purchase of the Cooke Locomotive Works at Paterson, and in the event that the deal is concluded the company's Jersey City shops will be transferred to Paterson and the large improvements which the Erie has been considering making to the Jersey City shops will not be carried out, but the Paterson shops will be made the most extensive along the company's system. The American Locomotive Company has been operating its Paterson plant only on a very small scale and recently it was announced that the company was considering plans to convert it into a plant for making steam shovels and other equipment; the property being so adjacent to the Erie line, however, makes it valuable as a location for car repair shops for that company, and it is highly probable that they may offer the locomotive company sufficient inducement to relinquish it. In the event of its acquiring the shops the Erie will undoubtedly be in the market for up-to-date machine tools and other machinery for its equipment.

The announcement that the New York, New Haven & Hartford Railroad will electrify its road from Stamford to New Haven, Conn., is of interest to the machinery trade, in that it is understood that the extension of its electrical zone will necessitate the erection of an additional power house. The company's plant at Cos Cob, N. Y., is not believed to be adequate to supply current for the proposed additional electrification. This work will involve the expenditure of a large amount of money, and such an undertaking necessitates the purchase of a variety of supplies in addition to the equipment necessary for the power plant.

G. J. Gay, chief engineer of the Delaware, Lackawanna & Western Railroad, has sent out plans covering the construction of the new car repair shop to be erected at East Buffalo, N. Y. The building is to be one story, of steel frame, brick and concrete construction, 84 x 481 ft. Bids will be received at the company's office in Hoboken on June 22.

George W. Kittredge, chief engineer of the New York Central Railroad, New York, has asked bids for a 30-stall roundhouse; blower house, 38 x 56 ft.; sand house, 18 x 55 ft.; engine house, 35 x 76 ft.; boiler house, 54 x 60 ft.; machine shop, 50 x 100 ft.; storage building, 50 x 100 ft.; turn table pit and office building to be erected at Corning, N. Y. The buildings will be of brick, steel and concrete construction. The road has also called for bids for a 10-stall roundhouse, annex buildings, 85-ft. turn table pit, ash pit, foundations for water column and a 50,000-gal. tank, and blower house to be erected in connection with its shops at Carthage, N. Y.

The Rochester Railway & Light Company, 34 Clinton avenue, Rochester, N. Y., has invited bids for the following equipment to be installed in the electric automobile repair shop that it is proposed to erect at Front and Andrews streets: Lathes, milling machine, planer and 1-ton power elevator.

The De Schaum-Hornell Motor Company, W. A. De Schaum manager, Hornell, N. Y., has plans under way for an automobile plant to be erected at North Hornell. The main building is to be two stories, 60 x 195 ft., of fireproof construction. Mr. De Schaum is ready to receive preliminary bids on equipment at his Buffalo address, 18 Court street, care of the Lincoln Paul & Newsome Company. The

equipment to be installed will include one 100-hp. gas producer plant, with gas engine driven electric generator and several motors; automatic stamping and rolling machinery, bulldozers, spindle drills, lathes, planers, drill presses, buffers, grinding machinery, friction bench drills, motor driven air compressor and woodworking machinery.

The Augustine Automatic Rotary Engine Company, B. F. Augustine, president and manager, Ellicott Square Building, Buffalo, N. Y., is about to close lease for machine shop space of about 15,000 sq. ft., in which it will engage in the manufacture of rotary engines, and is ready to entertain bids on three horizontal boring mills, one with 6-ft. swing, one with 4-ft. swing and one with 30-in. swing; three radial drills, one milling machine, one keyseating machine, one slotter, one grinding machine, one hardening furnace, one pipe threading and cutting machine, one hydraulic press, and various smaller tools for general machine shop work.

The new plant to be erected by the Emerson Steam Pump Company, Alexandria, Va., plans for which were prepared by Dodge & Day of Philadelphia, will be about 60 x 215 ft., of steel and brick construction, and will be equipped as a machine shop.

Plans are being prepared by the United States Lighting & Heating Company, 30 Church street, New York, for a large plant which is to be erected on the Niagara frontier in the vicinity of Niagara Falls. This company recently absorbed the National Battery Company of Buffalo, the Bliss Electric Car Lighting Company of Milwaukee and some other interests making car heating and lighting appliances. The company proposes to manufacture electric generator and storage battery systems for car lighting, and it is understood that a plant including a building 200 x 400 ft. and other structures will be erected. From all accounts no machinery has been purchased as yet, nor will anything in that line be done until the exact size of the buildings to be erected has been determined upon.

The General Electric Company has been making purchases against the inquiries for machinery that it has been sending out for the past month or more, and it is understood that in addition to machinery a considerable quantity of supplies has been bought. It is not believed, however, that the company's requirements are anywhere nearly filled and that considerable more buying will be done within a short time. At Schenectady, N. Y., extensive improvements are under way which will necessitate the installation of a great deal of mechanical equipment.

The Wheeling & Metal Mfg. Company, Wheeling, W. Va., will be in the market for a gas engine and electric equipment for the new building it is to erect at Glendale. There will be a main building, 80 x 260 ft., another 80 x 160 ft., and an office building, all of brick and steel construction.

The American Cement Company, Philadelphia, Pa., has purchased 13 acres of land at Poughkeepsie, N. Y., near the tracks of the New York Central Railroad, on which it will erect an extensive plant for the manufacture of Portland cement. Plans for the new buildings have not been completed.

Brewster & Co., carriage manufacturers, New York, have decided to move their plant from Broadway, between Forty-seventh and Forty-eighth streets, to Long Island City, where a site has been acquired, 200 x 306 ft. It is understood that plans for the new buildings to occupy the site are being prepared. The moving of such an important plant will undoubtedly necessitate the purchase of additional machinery.

The American Type Foundries Company may shortly come into the market for some small foundry equipment, such as is used in a plant for casting heavy type, to equip an addition which it is to build at its plant on Communipaw avenue, Jersey City. The company has awarded a general contract to the W. L. Crow Construction Company of Jersey City for the erection of the building, which will be 47 x 200 ft., one story. The details regarding the construction and equipment of the building are being arranged in Jersey City.

The New Jersey Brush Company of Newark, N. J., is moving its plant from that city to Watsessing, N. J., where it has purchased the works formerly occupied by the Ampere Silk Company, and considerable machinery is now being bought in this territory to supplement the company's equipment, which is being moved from Newark to its new plant. There are several buildings comprising the Ampere plant, and while the company has sufficient power equipment to supply its present needs, the other machinery in its Newark plant is not sufficient to equip all of the new buildings and there is considerable to be bought in the way of general machinery used in the manufacture of brushes.

The Allen-Schofield Company, Montreal, Canada, is in the market for machinery suitable for stamping, drawing and finishing sheet metal specialties. The company desires to handle special lines of builders' hardware and would like to get in touch with some company which would supply stamped and pressed work, the finishing to be done at the company's plant in Montreal. As it now has to import the steel, the company believes that it will be cheaper to import the goods already formed. Catalogues, prices, &c., of these products are desired.

The chairman of the Board of Control, Winnipeg, Manitoba, will receive bids until August 2 for the following hydroelectric and auxiliary equipment for the municipal generating station on the Winnipeg River: A, specifications Nos. 5 and 6, respectively, for five 5200-hp. turbines, two 450-hp. turbines; B, specifications Nos. 7, 8 and 11, respectively, for five 3000-kw. generators, two 250-kw. generators, switching and accessory apparatus; C, specification No. 10, for six step-up transformers; D, specification No. 12, for light, heat and power systems; E, specification No. 23, for protective apparatus; F, specification No. 25, for three electric traveling cranes; G, specification No. 27, for auxiliary apparatus. The specifications and plans were placed on exhibit June 15. As an alternative bidders may include or group together one or more of the sections, provided that bidders have also submitted bids for the individual sections of such groupings.

The Superintendent of Public Works, Albany, N. Y., will receive bids until July 13 for five additional barge canal contracts aggregating over \$5,000,000. The first four contracts, which were formerly embraced in one contract, cover work on the Mohawk River from Redford Flats to Little Falls, and the estimated cost of the work is about \$3,000,000. The fifth contract is for the construction of about six miles of canal from King's Bend to the Genesee River, at an estimated cost of \$2,100,000.

In order to simplify details in connection with correspondence, telephoning, &c., the Quincy, Manchester, Sargent Company, Plainfield, N. J., has deemed it advisable to change its name, and hereafter will operate under the corporate name of the Q. M. S. Company.

Chicago Machinery Market.

CHICAGO, ILL., June 15, 1909.

Trade in machinery lines is, as a whole, steadily increasing in volume. There is, it is true, still some variance in reports from individual interests as to the extent, but very little as to the fact of improvement both in actual sales and prospective demand. If general railroad buying continues to expand at the rate of the past few days it seems reasonable to expect that activity in this direction will before long include more liberal purchases of tools and machinery equipment. There are, however, no railroad inquiries of any considerable importance under consideration at present. Preparations for the enlargement of two of the leading car building plants in the West not only involve the purchase of a large amount of tools and machinery, but the fact that such improvements are being undertaken at this time is significant of busier times ahead in new car construction. That these extensions are being made chiefly with a view to the building of steel cars, or at least steel underframe work, is also suggestive of a trend in this industry that foreshadows a continued demand for more and heavier iron and steel working tools. The gradual substitution of steel for wood in all kinds of cars will render obsolete much equipment in all, but the more modern shops which to keep step with developments will be obliged to meet the new conditions by the installation of new machinery better suited to the character of work to be handled. With the exception of the Inter Ocean Steel Company, now in course of construction, work has not actually been commenced on any of the new steel working plants outside of Gary, for which sites have been secured in the Calumet District; but it is practically certain that the machinery requirements of those heretofore mentioned and others not yet made public will before long be submitted to the trade for figures.

The large list of machine tools required for the equipment of the new addition of the Pullman Car Company's plant is now about ready to be submitted to the trade for figures. A part of the list, in fact, is already in the hands of dealers, but it is understood that a revised list covering the entire requirements will be issued within a few days. This is the most important inquiry that has come into the market for a long time, including, as it does, over \$100,000 worth of tools. It is understood that work upon the new shops is to be pushed with a view to having them ready for operation early in the fall, and it likely, therefore, that orders for machinery will be placed without delay.

The Standard Steel Car Company, which about three years ago completed a plant for the construction of steel cars near Hammond, Ind., is now planning an addition thereto which it is estimated will cost in the neighborhood of \$1,000,000. The new addition will be designed for the building of passenger cars. A large amount of machinery will be required to equip the new shop.

W. K. Prudden & Co., Lansing, Mich., makers of automobile wheels, have decided to make their own steel rims for all kinds of automobile wheels. For this reason they have recently purchased a block of land adjacent to the present plant, upon which the first building to be erected will be a two-story brick structure, 60 x 300 ft. The machinery required for its equipment, a part of which has al-

ready been purchased, includes forming rolls, electric welding machines and a nickel and galvanizing plant. These improvements will increase the output to 250 sets of complete wheels per day.

The Western Machinery & Supply Company, Inc., Salt Lake City, Utah, incorporated with a capital stock of \$25,000, has succeeded J. M. Swem in the handling of new and second-hand mining, milling and other machinery. The new company is desirous of securing agencies of new engines, concentrating tables and other machinery outside of woodworking tools. The officers of the company are as follows: Fred S. Luff, president and treasurer; Sylvester H. Vowles, secretary.

As indicating the growth of demand for machine tools in Western shops, the Moline Tool Company, Moline, Ill., maker of gang drills and special machinery, states that its sales of multiple drills so far this year already exceed those of the entire year of 1908. The company has several new machines on the floor, which will be ready for the market in a short time.

The Pueblo & Suburban Traction & Lighting Company, Pueblo, Colo., of which J. F. Vail is general manager, is receiving bids on boilers aggregating 1000 hp., which are to be installed in its plants this year.

A complete change of the present lighting system in the Galveston, Texas, municipal plant is involved in plans for improvements now being prepared by Masterson & Youens, of that city, engineers in charge of the work. Bids are being taken on both steam turbine and compound reciprocating engines, and it will be later decided which type will be used. The present equipment consists of two simple noncondensing engines belted to six 50-light arc machines, which are inadequate for the service.

The city of Tacoma, Wash., is making surveys for and designing a hydroelectric power plant, to be constructed on the Nisqually River, about 35 miles southeast of that city. The plant will have a normal capacity of 30,000 hp., which will be transmitted and supplied for light and power through the distributing systems now owned and operated by the city. The amount authorized for the construction of the plant is \$2,000,000, of which \$1,750,000 is to be expended on the construction work.

Cincinnati Machinery Market.

CINCINNATI, OHIO, June 15, 1909.

Events of special significance in the tool trade now developing promise to mark the last two weeks of the year's first half in this territory as the beginning of an era of reconstruction. Quite uniformly the larger establishments making machine tools a specialty—save perhaps the planer companies—report good orders and for the most part direct shipments. The dealer's part in the improving conditions is so far rather that of a transfer agent; in other words, he is fulfilling his commissions, but not as yet taking tools for the stock floor. In one local case, that of a large concern making a specialty of lathes, time and forces employed are for the first time normal, that is, up to the standard prior to the boom times of 1907. In another establishment where four or five types of tools are made, all departments are working full 55 hr., and all machines in the plant are in operation.

Local manufacturers of tools have prepared an unusually comprehensive and extensive tool exhibit at the convention which begins this week of the Master Mechanics and Master Car Builders at Atlantic City, N. J. A half dozen carloads of machinery have gone to this exhibit, and among the various types contributed are some which are expected to create extraordinary interest among the mechanics and experts, types upon which their inventors have experimented and worked for a year and in some cases two and three years perfecting certain details. Those sending separate carload shipments, the American Tool Works Company, Cincinnati-Bickford Tool Company, Cincinnati Planer Company and Lodge & Shipley Machine Tool Company, will all have perfected types of their latest creations and mostly in operation.

The American Tool Works Company has sent a 36 in. x 10 ft. four head planer, 5 ft. radial drill, a 25 in. back gear shaper, 3 ft. high speed sensitive radial drill and a 24 in. x 12 ft. lathe, all direct connected and all to be shown in operation. This exhibit will be in charge of Robert Alter, with three assistants.

The Cincinnati-Bickford Tool Company's display will be in charge of Mr. Schauer, with one or more demonstrators. This company will show a high speed radial drill with a 5-ft. arm, capacity to drive a 3-in. twist drill at high speed, taking a coarse and heavy feed, whose designers believe to be the first radial manufactured to handle successfully high speed steel. The company will also show its new high speed upright drill with speed box designed for handling high speed twist drills up to 1½ in. in diameter. Both machines have attracted much attention in local machinery circles.

The Lodge & Shipley Machine Tool Company will show two lathes, both embodying the latest in various improve-

ments announced during the last year or more. These are an 18-in. and a 24-in., motor drive, the 18-in. to be shown in operation. This display will be in charge of Sales Manager J. W. Carroll.

The Cincinnati Planer Company will have a 37 x 37 in. variable speed motor driven planer with 8-ft. bed, personally represented by Secretary and Treasurer B. B. Quillen and Superintendent George H. Langen, which will also be shown in operation.

Two representative Cincinnati concerns whose display will be seen in the Manning, Maxwell & Moore section are the Cincinnati Shaper Company and the Dreses Machine Tool Company. The former will show a 32-in. back gear shaper, motor driven, with equipment for machining locomotive driving wheel boxes. The Dreses exhibit will consist of one of its 48-in. radials, with speed variator designed to handle high speed steel. One large manufacturer here who was expected to send something for display was compelled to forego the enterprise because his shop and office forces were so engaged with inquiries and increasing business as to prevent.

At the office of the Cincinnati Metal Trades Association Assistant Secretary Manley reports a constantly increasing list of requests for skilled labor from surrounding and Central States territory, many coming from Toledo, Columbus, Louisville, Atlanta, Bradford, Pa., and other manufacturing centers. The Entertainment Committee of the association is arranging for the customary annual outing for the benefit of employees and their families. The date will probably be the last Saturday in July. Invitations are to be sent members of the metal trades branches of other cities. The number and character of athletic events arranged for by the association for past events have been among the most important held in Ohio.

A reorganization of the American Valve & Meter Company has resulted in the retirement of N. Paul Fenner, Jr., as president and general manager, and Darwin T. Fenner, secretary. President Fenner's health, which has been very poor, made the move on his part necessary. V. T. Price, now vice-president, is acting president and Dwight S. Marfield, a local attorney and manufacturer, is secretary and treasurer. Mr. Marfield has been a director for seven or eight years and is thoroughly conversant with the business. Mr. McGarry, who was formerly treasurer of the company, was placed in a newly created position—that of sales manager.

In a good sized list of requirements for a large Virginia concern, Cincinnati manufacturers of punching and shearing machinery expect to secure a large part of the order calling for heavy duty machines. The list is now under consideration.

The Acme Machine Tool Company, a recent organization, officered by heads of two other large manufacturing concerns, the Warner Elevator Company and the Cincinnati Planer Company, has begun the manufacture of screw machines, the first product being a 2½-in. machine. C. H. M. Atkins is president; James R. Pearson, vice-president; J. H. Williams, secretary, and B. B. Quillen, treasurer.

The Fuglesong Machine Company, Dayton, Ohio, manufacturer of power hammers and heavy harness specialties, has leased a shop at 123-129 Brooks lane, to afford additional facilities.

The Morrison Iron Company, Norwalk, Ohio, has opened a branch house in Sandusky, Ohio, at Monroe and Warren streets, which will be managed by Sam Morrison of the firm.

Cleveland Machinery Market.

CLEVELAND, OHIO, June 15, 1909.

While the volume of business during the past week showed little change, machine tool houses report an improvement in the number of inquiries. The market is gradually broadening and dealers are not depending on the builders of automobiles and automobile parts so much as they have been for business. The demand from large manufacturing concerns shows an improvement, a number of the inquiries during the week for small lots of tools being from that source. The demand for second-hand tools is again good and dealers complain of considerable scarcity of good used tools.

Reports from nearly all local machine houses are encouraging. Orders continue to show an improvement from week to week, and working forces in the plants are gradually being increased. Builders of automatic machinery report a steady improvement in orders, and the same is true of builders of turret lathes. With the latter both the domestic and foreign orders are better, the demand from Germany in particular showing an improvement. In domestic orders there is more business from the railroads. With builders of heavy machinery the outlook is gradually growing better. Several orders for small mine hoists have been placed recently and a number of inquiries for large installations are pending. The demand for pneumatic tools has improved considerably.

In the foundry trade conditions remain about stationary.

A fair volume of orders is coming out for light gray castings, and nearly all the local jobbing foundries are running at about three-fourths or more of their full capacity.

The Hydraulic Pressed Steel Company, Cleveland, has awarded the contract for the erection of a one-story brick addition to its plant, 87 x 156 ft. The company will add new machinery equipment to the amount of about \$40,000, a large portion of which has not yet been purchased. The additional equipment will include large presses and smaller machine tools. The company at present has all the work it can do and finds that a larger plant is needed for its growing business.

The Lees-Bradner Company, Cleveland, has been formed to place on the market a new automatic gear generator, the invention of E. J. Lees. The company is a partnership, composed of E. J. Lees and H. T. Bradner, formerly vice-president and superintendent, and sales manager, respectively, of the Grant-Lees Machine Company.

The National Acme Mfg. Company, Cleveland, reports a continued improvement in the demand for automatic machinery, having recently booked some large orders in addition to an increasing number of small ones. Its screw machine products department is being operated at full capacity.

The Cleveland Pneumatic Tool Company reports that the demand for pneumatic tools has picked up considerably. The company is now operating its plant with its full force of men on half time.

The Wellman-Seaver-Morgan Company, Cleveland, reports a better outlook for all its lines of machinery. This company has recently sold a number of small mine hoists, for which the demand has improved, and a number of inquiries are pending for large hoists, gas producers and other products.

The plant of the Kinsey Mfg. Company, Dayton, Ohio, will be moved to Toledo and will occupy a new factory building to be erected adjoining the plant of the Pope Motor Car Company, which was recently purchased by the Overland Automobile Company of Indianapolis. The Kinsey Company manufactures automobile parts.

The Cleveland Castings Pattern Company notes a decided improvement in the demand for patterns, many orders coming in for rush work. The demand is good for stove, machinery and for hot water and steam heating boiler patterns.

The Farrel Foundry & Machine Company, manufacturer of chilled rolls and heavy machinery, Ansonia, Conn., has opened a branch office at 1011 Williamson Building, Cleveland, Ohio, which is under the management of George W. Osborn.

Milwaukee Machinery Market.

MILWAUKEE, WIS., June 15, 1909.

During the recent industrial depression a feature of considerable importance to this section of the country was the continued and well sustained strength of the demand for internal combustion engines, from those of the smallest size, utilizing gasoline and other products of petroleum, to those of 5000 hp., designed for operation on blast furnace gas. It is well recognized here that had it not been for the latter the great shops at West Allis could hardly have been kept going, while in the manufacture of the former, or apparatus pertaining thereto, a large number of establishments throughout Wisconsin and adjoining States were maintained upon a reasonably profitable basis. Now that business generally is making rapid strides toward a restoration to normal, this trade keeps well in the van of returning prosperity and is a very dependable factor. A strong inquiry has also developed for gas producers adapted to fuels of varying character, including slack and bone coal, lignite, peat, timber waste and crude petroleum, and many specifications covering complete gas power plants are now being put out by builders in response to specific requirements of prospective users. This is a trade which, with all its numerous ramifications, it will pay builders of shop machinery to keep a close watch upon, for apparatus in great variety, including machine tools of practically every description, will be needed by manufacturers in this section to meet the rapidly growing demand for increased output.

In the improvement of local plants or equipment of new ones it is noticeable that during the past few months an effort has usually been made to secure machinery of the best quality, with an established record for economical operation. Second-hand tools find comparatively little sale here, and apparatus that is not already well known to manufacturers of this section is particularly difficult to sell at the present time as compared with standard lines. Such old equipment as offers is disposed of mainly in other parts of the country.

The foreign trade of leading Northwestern manufacturers, as shown in recent reports, is looking up materially. Machine tools, power and mining machinery and apparatus for handling bulk materials are particularly sought, while a good deal of construction work is also in sight. Details as

to the exact location of this business are, however, usually withheld. Large Milwaukee builders interviewed, while confirming the general truth of the statement, refuse to allow mention to be made of specific contracts, fearing to open to certain competitors fields to which they feel the prior claim. During the year 1908 some very vigorous scouting was done abroad by manufacturers in this section and considerable money spent in cultivating friendly relations with foreign houses, notably in Latin America and the Orient. The effect of this work began to be felt as early as last September and it has been of a cumulative quality. Now the results shown are very complacently regarded by those whose foresight they reward.

The Waukesha Motor Company, Waukesha, Wis., is taking bids for a portion of its new plant, which is to be electrically operated, although the company has not yet decided whether to put in its own generating unit. The first building erected will be 100 x 120 ft., of steel and brick or concrete, with saw tooth roof; second building, 100 x 200 ft., of the same construction.

The Northwestern Construction & Engineering Company, Milwaukee, has been incorporated by C. B. Holder, A. E. Riechert and E. M. Daniell.

The Fisher Governor Company, Marshalltown, Iowa, has increased its business to such an extent that the plant will need to be practically doubled this year.

The Oliver Machinery Company, Grand Rapids, Mich., has taken a contract from the Federal Government for pattern shop tools to be used on the Isthmus of Panama. The trade of this company is at present very lively.

The Power & Mining Machinery Company, Cudahy, Wis., has been awarded contract by the Isthmian Canal Commission for a complete rock crushing plant to duplicate one previously installed at La Boca. An Allis-Chalmers outfit, with gyratory breaker, was also erected recently at the coast quarry.

Reports regarding the erection by the A. O. Smith Company of a new plant in Milwaukee for the manufacture of automobile parts have finally crystallized in the statement that it is to be one story, 285 x 800 ft., of steel frame, hollow tile walls, steel and tile roof, with a separate power plant, 40 x 60 ft., and an office building, 50 x 125 ft. A large quantity of new machinery will need to be purchased in the near future, including all tools usual in the equipment of a plant of this kind.

The Sailer-Whitmore Company, Menasha, Wis., will build a retaining wall along the river and erect a foundry for use in connection with its present plant.

The Auto Body Company, Lansing, Mich., is having plans drawn for a group of new shops.

The city of Madison, S. D., has purchased two producer gas engines of 335 hp. from the Minneapolis Steel & Machinery Company and electric generators of corresponding capacity from the Ft. Wayne Electric Company.

The Kimberly-Clark Company, Neenah, Wis., has decided upon remodeling its power plant. No details concerning the purchase of machinery have as yet been given out.

The Pierce Motor Company, Racine, Wis., has begun work on foundations for a machine shop, 60 x 180 ft., and will start the erection shortly of a second building of larger dimensions. The contemplated removal to Milwaukee has been abandoned, but a branch may be established here later on.

A brick and steel forge shop is to be added to its factory by the American Skein Company, Racine, Wis.

Engine and boiler for the new Government station at White Shoal, Mich., will be supplied by the Downey & Kruse Company, Milwaukee, and an air compressor by the Chicago Pneumatic Tool Company.

The Malleable Iron Range Company, Beaver Dam, Wis., has let contract to D. B. Danielson, Milwaukee, for a new shop, 60 x 168 ft., and L foundry, reported as 70 x 210 x 270 ft., including annealing department.

The Great Northern dock at Superior, Wis., will be enlarged and equipped with modern machinery.

The Great Northern Railroad shops at Delta, near Everett, Wash., are being enlarged and additions to the machinery now installed will be made in the near future. At Grand Forks, N. D., a new roundhouse and repair shop is to be built.

It is reported that the Milwaukee Electric Railway & Light Company, Milwaukee, will erect new car shops and barns covering two city blocks; also an addition to its power station at West Allis. Steel construction will be used.

The Nordberg Mfg. Company will supply the engine for the new power plant of the Jos. Bach Estate, Milwaukee; the Ft. Wayne Electric Company has contract for the generator and the Ames Iron Works for boilers.



The Bessemer & Lake Erie Railroad, operated by the Carnegie Steel Company, Pittsburgh, handled in the first seven days of June an average of 33,767 tons of ore per day between its docks at Conneaut Harbor, Ohio, and its blast furnaces in the Pittsburgh District.

Philadelphia Machinery Market.

PHILADELPHIA, PA., June 15, 1909.

Buying continues somewhat irregular and while some manufacturers and merchants report a betterment, others note a tendency toward quietness. Merchants transacting business in the territory immediately adjacent to this city have not taken on any very considerable business, although those covering a wider field have been more active. While the buying movement which developed during early May has quieted down to some extent, it is believed that the trend is in the right direction and it will require two or three movements of this character before business again gets settled into a regular stride. At the time competition is very sharp, and while prices in the leading classes of tools are pretty well maintained, there have been concessions of one kind or another made in some instances in less important lines. The feeling on the whole is decidedly optimistic. Increased activity is to be noted in both finished and semi-finished iron and steel products, and mills are much more fully engaged, particularly in the West.

The railroads are buying more freely, although their transactions in machine tools have been comparatively light. Inquiries before the trade are mostly for single tools, an occasional one developing for equipment covering three or four tools. Some larger business, however, is in sight and may develop at no distant date. The forward movement in general business is better and the trade is encouraged with the outlook for more active conditions, at least, early in the fall.

The activity reported by manufacturers of machine tools varies considerably. Some few in this territory are running to full capacity; the larger proportion, however, have not exceeded 60 per cent. of normal, while quite a few are still below 50 per cent. No developments are reported in connection with the foreign demand. Inquiries are light and very little new business has been taken on. Boilers and engines continue active. The bulk of the trade has been in equipment of the smaller horsepower, although several orders covering quite extensive installations are under consideration.

Second-hand machinery merchants find business still irregular, a fair day to day business covering a wide range of metal and woodworking machinery being reported.

Conditions in the foundry trade show a slight betterment; it is spotty, however, and lacks regularity, gains being noted in some instances, declines in others. Jobbing foundries are only fairly active, steel casting plants show a little improvement. There has been but little increase, however, in the demand for castings for machine tool purposes.

The Newton Machine Tool Works, Inc., is receiving quite a number of inquiries. Sales during May were the largest in any month for over two years, and indications for further buying are believed to be favorable. Orders recently taken consist chiefly of those for cold saw cutting off machines for various classes of work, milling, slotting, rotary planing and cylinder boring machines. This company has made a number of extensions to its plant and equipment the past year, and is still adding new tools, largely, however, of its own manufacture.

The R. S. Newbold & Son Company, Norristown, Pa., reports material improvement in business the past six weeks. More inquiries are being received and a fair amount of orders have been taken. This company is now operating 65 to 70 per cent. of its capacity and feels very much encouraged at the outlook for business.

The Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa., has recently taken an order for the reconstruction of the No. 3 blast furnace of the E. & G. Brooke Iron Company, Birdsboro, Pa. Business is not reported very active by the Birdsboro Company, although the general betterment in the trade will, it is expected, have a beneficial effect on its business.

The Betts Machine Company, Wilmington, Del., notes an increased inquiry for its line of tools. At present the plant is being operated 46 hr. a week, but not with a full complement of employees. Orders received are mostly for individual tools. A few foreign inquiries have developed, but no orders. The demand recently has been largely for vertical boring and turning mills. A number of tire turning and boring mills are about completed for the Forged Steel Wheel Company, Butler, Pa.

The contract for extensive improvements to the plant of the Chester Water Company, Chester, Pa., has been awarded, we understand, to Thomas Oliver of that city. It includes the erection of an addition to the present pumping station and boiler house, new machinery and other equipment, particulars regarding which are not available at the time.

The Hilles & Jones Company, Wilmington, Del., states that the volume of orders taken during May was the largest since the fall of 1907, and the same conditions have thus far extended into the present month. The outlook for the future is believed to be bright.

New England Machinery Market.

BOSTON, MASS., June 15, 1909.

There is no evidence of any weakening in the demand for machinery, and on the whole a slight improvement is noted. The experiences of the dealers vary from week to week, each having his spurs as large orders or groups of lesser amounts are booked, and also his intervening lulls, during which complaints may be heard. But the average continues satisfactory. Inquiries for heavy tools are becoming more numerous and more important. One specification is for some \$60,000 worth of planers, but this was received by manufacturers and not by dealers, the customer being outside of the New England territory. The manufacturers report that indications are good and that more business is being placed. There is a difference of opinion as to the probability of a serious falling off of business during the summer. Probably summer vacation shutdowns will be less numerous than usual. Where orders warrant a continuous operation, some concerns, which ordinarily give their employees vacations, will make an exception this season. Workmen have had all the idle time they desire, as a whole, and the necessity of repairs and similar work, which has been an important purpose of shutdowns, does not exist in many works, there having been ample opportunity to attend to these matters during the last two years. Not a few manufacturers will restrict their personal vacations, because they feel that their personal services will be required at their offices and because they took the opportunity of the dull summer last year to make more extensive vacation trips than usual. If these conditions prevail in an important way they will have the tendency to keep up the buying.

There is a marked change in the tool steel trade. Customers are buying in really good sized lots. The experience has been that most orders were for a few pounds. Now they run into considerable sums of money. More men are at work in the warehouses. Practically all large buyers of merchant steel have provided for their wants for some time ahead, but many users, whose requirements are comparatively small, are still to place their contracts.

The Frank Mossberg Company, Attleboro, Mass., manufacturer of stampings, steel spools and reels and machinery, is to have a new plant which will give largely increased manufacturing facilities, that are imperatively needed. There will be two buildings, one 60 x 300 ft., two stories, and the other 80 x 150 ft., one story, providing some 50,000 sq. ft. of floor space. The building will be located on an 8-acre tract of land, to provide for future growth, and will have spur track facilities. The company is now studying the question of power, the various types of steam and gas engines being under consideration. The plant must develop 150 hp. Electric power will be generated with the purpose of using motor drive. The company had thought to leave Attleboro, but the local Board of Trade has been active in the matter of retaining the industry, and a company has been formed, known as the Attleboro Land Company, to erect the new factory, which the Frank Mossberg Company can acquire later. The business has grown very rapidly, and during the past two years the demand for steel spools and reels has so increased as to require large space for that department alone.

The Columbia Motor Car Company has been incorporated in Connecticut to take over the business of the Electric Vehicle Company. The incorporators are Lucius F. Robinson, Albion B. Wilson and Francis W. Cole, representing the bondholders of the old company, who propose to reorganize and continue the business. The sale of the assets to the new company was authorized by the United States Court at Trenton, N. J., on Monday.

The Chapman Valve Mfg. Company, Indian Orchard, Mass., has voted to increase its capital stock \$300,000, which will be disposed of to the old stockholders at par. It is understood that the purpose of the new issue is to increase the working capital rather than for enlargement or expansion.

The Carlyle Johnson Machine Company, manufacturer of friction clutches, has completed the renovation and equipment of its new shops at Manchester, Conn., and is about to transfer the business from the old plant at Hartford, Conn. The new factory will provide large additional manufacturing space and will greatly increase the economy and general efficiency of manufacturing.

The business of the Briggs Company, Portland, Conn., manufacturer of bright wire goods, will undoubtedly be taken over by the Portland Specialty Company, which has been incorporated for the purpose under Connecticut laws. The Briggs Company is now in the hands of a receiver, and the permission of the courts will have to be obtained before the new company can take possession, but it is believed that this formality will soon be concluded. David Barry will be president of the new company and James H. Barry, treasurer and general manager. The company will manufacture a line

of novelties, including some of those of the Briggs Company. It is given out at Pittsfield, Mass., that the General Electric Company will make large additions to its works in that place this season. It is stated locally that a transformer building will be 80 x 375 ft. and three stories, with walls capable of sustaining two additional floors when the need for the space shall require. Other buildings will be erected later, it is stated.

The American Writing Paper Company, Holyoke, Mass., is considering the erection of a power plant.

The greatest of the textile mills of New Bedford, Mass., will be the Nashawena Cotton Mill, which it is proposed to establish at a cost of \$2,500,000. William Whitman, Brookline, Mass., head of the National Cotton Manufacturers' Association, is the head of the new company. The building will be 125 x 800 ft. The Loraine Mfg. Company, Pawtucket, R. I., is to build a \$1,500,000 addition to its plant. The Lafayette Worsted Mill Company, Woonsocket, R. I., will duplicate its main mill with a building 109 x 174 ft., four stories. The George Mabbett & Sons Company, Plymouth, Mass., will build an addition, 30 x 115 ft. The J. F. & M. H. Warren Company, Worcester, Mass., leather goods, will build a new factory, 60 x 90 ft., three stories. The Stamford Candy Company, Stamford, Conn., will replace the building recently burned by a factory, 50 x 100 ft., two stories, of reinforced concrete. The Ninigret Mills Company, Mystic, Conn., will erect a large addition.

Government Purchases.

WASHINGTON, D. C., June 15, 1909.

The date of opening bids on several proposals for machinery for the navy yards has been extended. The Bureau of Yards and Docks, Navy Department, Washington, will receive bids until July 10 instead of June 26, as formerly announced, for the following: Piping, pumps, condensers, heaters, &c., for the Puget Sound Navy Yard; three 5000 cu. ft. air compressors and accessories for the New York, Philadelphia and Mare Island navy yards; eight boilers with oil burners, flues, superheaters and stack for the Puget Sound and Mare Island navy yards; one 40-ton locomotive jib crane for the Norfolk Navy Yard; one 1000-kw. and two 1500-kw. turbo alternators for the New York, Philadelphia and Boston navy yards; motor generator sets, exciters, switchboard, &c., for the Philadelphia Navy Yard.

The following bids were opened June 8 for machinery for the navy yards:

Class 31, one 80-ton overhead traveling crane—Bidder 2, Alliance Machine Company, Alliance, Ohio, \$22,975 and \$24,000; 10, Cleveland Crane & Engineering Company, Wickliffe, Ohio, \$17,735; 31, Manning, Maxwell & Moore, New York, \$22,806; 53, Morgan Engineering Company, Alliance, Ohio, \$21,475; 56, Niles-Bement-Pond Company, New York, \$17,600; 87, Wellman-Seaver-Morgan Company, Cleveland, Ohio, \$26,000.

Class 41, one pipe expanding and flanging machine—Bidder 46, Lovekin Pipe Expanding & Flanging Machine Company, Philadelphia, Pa., \$10,000.

Class 71, one electric deck winch—Bidder 41, Hyde Windlass Company, Bath, Maine, \$2700; 92, Williamson Brothers Company, Philadelphia, Pa., \$2750; 100, Lidgerwood Mfg. Company, New York, \$3175.

Class 143, two feed water heaters—Bidder 32, Griscom-Spencer Company, New York, \$2175 and \$2060; 74, Schutte & Koerting Company, Philadelphia, Pa., \$3625; 96, Alberger Condenser Company, New York, \$1803.50.

Bids were opened on June 7 for motor generator sets for the Central, Eastern and Western high schools, Washington, D. C., as follows:

Prices are the same under each bid for each school.

General Electric Company, Schenectady, N. Y., A, \$654; B, \$650; Western Electric Company, New York, \$668; Richmond Electric Company, Richmond, Va., \$618; National Electrical Supply Company, Washington, D. C., \$745; Fort Wayne Electric Works, Fort Wayne, Ind., A, \$488; B, \$469; Wagner Electric Mfg. Company, St. Louis, Mo., \$670.60; Charles J. Bogue Electric Company, New York, \$890; Holtzer-Cabot Electric Company, Brookline, Mass., \$635.

The following bids were received June 5 at the Bureau of Yards and Docks, Navy Department, Washington, for a local conveyor system of the gravity bucket type for the United States Naval Station, Key West:

Item 1, work complete; 2, work in accordance with specifications except that for each conveyor only one receiving hopper, one weighing hopper and one discharge chute shall be provided; 3, omitting all weighing hoppers and scales; 4, in accordance with specifications except that at west end of sheds the conveyor shall return to a level of upper run in sheds without the return loop; 5, deduct from item 1, omitting ladders, platforms, and stairs; 6, add to item 1 for building outside pits complete; 7, bidder's specifications.

Penn Bridge Company, Washington, D. C., Item 1, \$46,600; 2, \$46,000; 3, \$44,900; 4, \$43,900; 5, \$400; 6, \$7870; Conveying Machinery Company, New York, Item 1, \$44,454; 2, \$44,086; 3, \$42,848; 4, \$41,883; 5, \$450; 6, \$7920.

Dietz Engineering Company, New York, Item 1, \$59,000; 2, \$57,000; 3, \$53,000; 4, \$50,000; 5, \$190; 6, \$10,300.

Meade-Morrison Company, New York, Item 1, \$75,845; 2, \$65,595; 3, \$69,845; 4, \$59,595; 5, \$200; 6, \$2242.

The following bids were received May 27 at Tompkinsville, N. Y., for two Scotch boilers for light vessel No. 44:

Harlan & Hollingsworth Corporation, Wilmington, Del., \$4193, accepted.

Staten Island Shipbuilding Company, Port Richmond, N. Y., \$4350.
 New York Shipbuilding Company, Camden, N. J., \$5275.
 Wm. Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa., \$5360.
 Waters-Gildersleeve-Colver Company, West New Brighton, N. Y., \$6455.
 Kingsford Foundry & Machine Company, Oswego, N. Y., \$8930.

The Hyde Windlass Company, Bath, Maine, has been awarded contract for a steam windlass for light vessel No. 44, at \$1400, under opening of May 22.

Under bids opened May 4 for machinery for the navy yards, the Hyde Windlass Company, Bath, Maine, has been awarded class 91, one double geared steel capstan, \$495.

The Cleveland Automatic Machine Company, Cleveland, Ohio, has been awarded class 251, one single spindle automatic screw machine, \$1869.80, under bids opened May 18, for machinery for the navy yards.

The following awards have been made for machinery for the navy yards, bids for which were opened May 25:

Chicago Concrete Machinery Company, Chicago, Ill., class 61, one concrete mixer, \$900.

Union Steam Pump Company, Battle Creek, Mich., class 91, one condensing equipment, \$986.

The Niles-Bement-Pond Company, New York, has been awarded contract for one set of plate bending rolls for the general lighthouse depot at Tompkinsville, N. Y., for \$2200. Bids were opened June 5.

Trade Publications.

Gas and Gasoline Engines.—Jacobson Machine Mfg. Company, Warren, Pa. Bulletin No. 27. A general description of hit and miss engines, with a line drawing of a standard type of engine is given, and the various parts of the machine are taken up and separately described. Portable and semi-portable engines are shown, together with a portable engine with wood-sawing attachment.

Wood Split Pulleys.—Dodge Mfg. Company, Mishawaka, Ind. Booklet, entitled "From Log to Lineshaft." Describes the manufacture of the company's wood split pulleys step by step and shows a standard pulley in various stages of construction, together with several finished types.

Gears.—Boston Gear Works, Norfolk Downs, Mass. Catalogue E2 and Circular B3. The first is in booklet form and treats of standard steel gears and describes the method employed by the company in manufacturing its line of gears, which include case hardened steel gears and chrome nickel steel gears. Sectional illustrations of various pitches show that the company is prepared to furnish about everything in the way of gears, including iron, brass, wrought iron and fiber gears. The circular is devoted especially to steel gears and also illustrates a line of ball universal joints, thrust collar bearings, &c.

Foundry Equipment.—Whiting Foundry Equipment Company, Harvey, Ill. Catalogue No. 56, superseding catalogue No. 30, and booklet. The first contains 23 pages, devoted especially to core oven equipment, and shows a standard core oven, with photographic views and line drawings. These ovens are made in several types, including a revolving and drawer type oven. Core oven racks and cars are shown, together with standard coremakers' benches, and several views of the company's equipment in use in foundries are shown. The booklet is entitled "A Model Foundry," and contains two typical layouts for foundries and illustrations of the equipment recommended. The booklet was prepared especially for distribution at the Cincinnati convention of the American Foundrymen's Association, and should be useful to those contemplating the construction and equipping of a foundry.

Feed Water Purification Systems.—Harrison Safety Boiler Works, Philadelphia, Pa. Circular. Gives two tables of results obtained from two users of the company's boiler feed water system, a catalogue explaining which was reviewed in *The Iron Age*, June 8, 1909.

Bronze Propellers.—Fore River Shipbuilding Company, Quincy, Mass. Post card. Shows a manganese bronze yacht propeller cast in the company's foundry and being finished in a special propeller planing machine.

Recording Gauges.—The Bristol Company, Waterbury, Conn. Bulletin No. 104. A preliminary bulletin of recording gauges for all commercial ranges of pressure and vacuum. Illustrates the various types of gauges and gives sample charts.

Pump Valves.—Crosby Steam Gauge & Valve Company, Boston, Mass. Card. Shows the Branden pump valve with wire coil insertion and briefly describes it.

Engineering Inspection, Assaying, Analyzing, &c.—The Bullock-Henderson Company, Pittsburgh, Pa. Booklet. Sets forth the company's qualifications in consulting engineering work along the lines mentioned above and including the inspection of railroad material and equipment, with which the organization is especially familiar. Also contains instructions for selecting pig iron, coal, coke, cement, brick, &c., for sampling and other material for making analyses.

Copper Flange Gaskets.—Chapman Engineering Company, Land Title Building, Philadelphia, Pa. Catalogue No. 9, 6 x 9 in., 23 pages. Devoted principally to the company's line

of case hardened corrugated copper flange gaskets and gives views of several types, including pump gaskets, valve bonnet gaskets, waste heat boiler gaskets, &c., which are made in various shapes. Views of a double circular glass cutter and a single circular glass cutter are shown and composition metallic boiler gaskets are briefly mentioned.

Mine Sheaves, Rollers and Appliances.—Coshocton Iron Company, Monongahela, Pa. Folder. Shows several types of mine sheaves and stands, which are made up to 72 in. groove diameter, and lists prices of different sizes.

Trench Braces.—Dunn Mfg. Company, Pittsburgh, Pa. Booklet. Shows extensible trench braces or ditch jacks, for bracing sheeting in trenches and tunnels, including a view of the braces in use on subway construction work in New York City.

Water Purification Systems.—William B. Scaife & Sons Company, Pittsburgh, Pa. Catalogue, 6 x 9 in., 44 pages. Views of the company's plant and laboratory are shown, and a short treatise on water filtering, softening and purifying is given, together with descriptions of the company's apparatus. A number of views of installations are shown of apparatus in use in paper plants, breweries, packing houses, &c. Several types of systems adaptable for different manufacturing plants are shown, including a tower type condensing system, an automatic water purifier and a system especially adaptable for treating hot water under pressure.

Spiral Riveted Pipe.—American Spiral Pipe Works, Chicago, Ill. Circular. Gives views of installations of spiral pipe used in supplying water for hydro-electric plants, and shows a section of spiral pipe with a forged steel bolted joint.

Lathe Chucks.—Skinner Chuck Company, New Britain, Conn. Leaflet. Shows several chucks, including a chuck with patent reversible jaws, and explains that the company furnishes chucks with three or four jaws in either universal or combination pattern.

Power Presses.—Consolidated Press & Tool Company, Hastings, Mich. Calendar for June. One of a series of monthly calendars setting forth the advantages of the company's line of power presses.

Condensing Apparatus.—A. S. Cameron Steam Pump Works, New York. Booklet. Contains diagrams of a centrifugal jet condensing apparatus, a barometric jet condensing apparatus and a surface condenser, with brief descriptive matter.

Sheet Steel Stampings.—Matthews Mfg. Company, Worcester, Mass. Catalogue. Illustrates sheet metal stampings made by the company to order only, as it carries none of the goods shown in stock. The factory is equipped to do difficult drawn work and makes a special point of accuracy. The catalogue is useful as showing the type of work done and states that the company has its own electroplating, polishing and lacquering departments and is, therefore, able to furnish a variety of finishes on sheet metal at reasonable cost.

Variable Speed Transmission.—Variable Speed Clutch Company, Milwaukee, Wis. Catalogue. Relates to an air-controlled variable speed clutch, a full description of which was printed in *The Iron Age*, April 8, 1909. The catalogue contains a number of testimonial letters from well-known manufacturers containing favorable comment upon results obtained with this equipment.

High Speed Tools.—Whitman & Barnes Mfg. Company, Chicago. Catalogue No. 72. Covers a line of drills which includes high speed twist drills and reamers, Norka high speed twist drills and chucks, Hercules high speed twist and flap drills.

Sheet Metal Working Machinery.—Dreis & Krump Mfg. Company, Chicago, Ill. Catalogue No. 9, 20 pages. Refers to a line of steel cornice and heavy power brakes for bending light sheets and steel plates up to $\frac{1}{4}$ in. thick. These brakes differ from the usual form of construction in that they are built throughout of wrought steel plates and shaped so arranged as to bring an edgewise strain against the plates of the bending leaves. These brakes are made in suitable widths and capacities for general cornice work, and include two special styles, one for steel range makers' use and the other for making electric switch boxes and miscellaneous pan work.

The fourteenth annual meeting of the Lake Superior Mining Institute will be held on the Marquette Range, beginning Wednesday, August 25, and continuing to Saturday, August 28. Headquarters will be in Ishpeming, Mich., and excursions will be arranged for the entertainment of the members and guests. Local committees are preparing a programme and itinerary for the meeting. A. J. Yungbluth is secretary of the institute.

The Climax Chain Company, St. Louis, Mo., desires to communicate with manufacturers of steel rods that will be suitable for making cold rolled unwelded electric fixture chain in sizes up to $\frac{1}{8}$ in. The material must be cold drawn, or rolled to be uniform and smooth, accurate in gauge and free from pitting or checking.

HARDWARE

AT this time when the question of the crops is so prominently before the public it is eminently proper that the farmer and his position in the business world should come in for a share of attention. While the prosperity of the country is in large measure dependent on the prosperity of the farmers, and its increase in wealth as well as the movement of a normal volume of business dependent on good harvests, it is fitting that the farmers themselves and their constantly growing importance as consumers of manufactured products should receive recognition. Their contributions to the material wealth of the land, in the agricultural products which through the channels of trade are everywhere disseminated, yield them as a class handsome financial returns, which enable them to be liberal purchasers not only of the necessities of life, but also of a multitude of things relating to comfort, refinement and luxury.

There was a time not very long ago when the farmer was regarded as having a hard lot, and was in fact in a much less satisfactory position than he now occupies. The financial condition of the agricultural classes was strikingly different from what it is in these days of signal rural prosperity. Instead of anxiety in regard to the payment of interest on their heavily mortgaged farms there are now questions as to the investment of surplus funds, after there has been a liberal expenditure in the purchase of things contributing to comfort and elegance in living. This new condition, the full effects of which are not yet manifest, is incidentally touched upon in the letter of a correspondent published under the heading of the Question Box on a subsequent page of this issue. The material well being of the farming class, while a matter for rejoicing because of its direct relation to national prosperity, is a fact which should not be overlooked by the merchants through whom their purchases must be made. With larger resources and increasing incomes there is a general reaching out on their part after the material things which occupy so conspicuous a place in modern life. Instead of the simple homes, meagerly and cheaply furnished, which contrasted strangely with the residences of well to do people in towns and cities, there is now a constant movement toward the more adequate, comfortable and even elaborate equipment which is characteristic of these days when such a multitude of products are provided to meet real and imaginary wants. Finer furnishings of the houses, modern plumbing, more expensive dress, fancier vehicles and even automobiles are indicative of this trend.

While this state of things does not hold with all farmers individually, the fact remains that the farmers generally are increasing in prosperity, have more money and greater inclination to spend it, and are, therefore, of growing importance as customers or prospective customers of the merchants whose business it is to supply them with the commodities they need. The wisdom of cultivating the farmers' trade is thus enforced. It is a large and growing trade. It calls for a different and a better class of goods than it did a few years ago. How to take care of it will demand a recognition of the opportunity, a new alertness perhaps on the part of the merchants, and the adoption of new and more carefully devised methods to secure the business. How this may be done, the mis-

takes which are to be avoided, the new spirit which is to bring the commercial and the agricultural classes closer together, the special expedients which may be employed by merchants to make themselves solid with the farmers, are questions of direct, practical interest to which merchants who desire to keep step with the movement of things must give attention.

Condition of Trade.

There is general agreement in the reports from manufacturers to the effect that the volume of business in most lines is not as large as two or three weeks ago. There is apparently the lull which usually follows a period of special activity, as the influences which stimulated such activity have in some measure spent their first force. The announcement of the higher prices for Wire Nails and important Wire products had unquestionably much effect on the Hardware market as a whole, and in sympathy with the better feeling in the Iron market induced the placing of a good many miscellaneous orders which had been held back during the period of hesitancy and shrinking values. In connection with this buying movement there was naturally the purchasing of such goods as were immediately needed, and the present wants of the trade were thus satisfied. There is at this time, accordingly, only a moderate movement of business, with, however, an excellent feeling and the expectation on practically all sides that things are going to continue to improve and that we are on the way to a renewal of prosperous conditions. There are some who look for a rapid return to a heavy volume of business, in which the capacity of mills and factories will be overtaxed, with perhaps radical advances in prices, but the more conservative view that the movement will be gradual is more generally entertained. But whether it be with a slow but steady or a rapid pace it is recognized that the turn has come and that things are moving in the direction of a fine volume of business. While there are enough uncertainties as to the extent of the crops to justify watchfulness and caution the outlook is assuredly promising, with a fair possibility that there will be harvests which in value will compare well with those of any preceding year. In the Hardware market there is little in regard to its tone or special changes in price to call for particular mention. Prices in some lines are weak and irregular, in others attractive orders will secure concessions from regular quotations and certain lines, mostly in the department of Heavy Hardware, are held firmly and may be on the verge of an advance. It is a condition of things which places unusual responsibility on the buyer. There is need for the exercise of good judgment. It is a state of things in which it is easy to make mistakes. There is an opportunity for a careful sounding of the market to find out where orders can most advantageously be placed. While in general there would appear to be a greater prospect of advances than of declines in the prices ruling on most goods there is little doubt that skillful buying will justify the pains and care it requires.

Chicago.

As the harvest season approaches the eyes of the commercial world turn with anxious scrutiny toward maturing crops as an issue upon which in a large measure depends the future prosperity of the country. All

trade interests are keenly sensitive to the varying sentiment of doubt and hopefulness reflected in reports indicating the probable outcome; and none more so perhaps than those engaged in the manufacture and sale of goods included in Hardware lines. It is, therefore, interesting to note that recent information concerning crop conditions, gathered through a large sales organization covering all of the Middle and Western States, affords no ground for apprehension. Here and there in some localities the prospects are not wholly favorable, but such instances are not numerous enough to reduce materially the general average. Trade in the meantime is steadily improving and manufacturing plants are gradually becoming more active. No surer indication of the spread of confidence is needed than that observed in the increase of operative and sales forces. During the late depression many factories and sales organizations have been more or less disrupted by retrenchment measure requiring the dismissal of many employees, and now that the volume of business is increasing, more help is needed. The prolonged continuance of unseasonable cold weather in the North has retarded the movement of some lines of goods, while it has quickened the sale of others. Stocks of Screen Doors in the hands of retail dealers, for instance, have not moved as quickly as usual, and in consequence the jobbers are receiving but few reorders. Lawn Mowers on the other hand are in good demand. Something of the activity in building trades may be gathered from the statement of building permits issued during the present month in the leading cities. In Chicago for the month of May the cost of structures for which permits were taken out amounted to \$12,609,480, or more than double that of the same month last year. These estimates include several large buildings, the chief one of which is the new city hall. Naturally such expansion in building is reflected in a greater demand for Builders' Hardware, and trade in this line is more nearly of normal volume than at any time within the past two years.

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—Contrary to our usual experience, our sales this year in June, for the same number of days, are running ahead of May. We are showing a much better increase over last year than we did for the same period in May.

This we attribute not to the tariff discussion in Washington, but to improved crop prospects. There have been good rains in many parts of our territory that were suffering from drought. We are receiving favorable crop condition reports from almost every direction. With wheat bringing \$1.50 and corn 75 cents per bushel, even the tariff tinkerers in Washington cannot head off the business coming our way.

Lo, the poor corporations! When everything else fails our solons can fall back on their usual plan of sticking the corporations. Now it is planned to have the corporations taxed on their net profits.

Work hard—deny yourself—make sacrifices—build up a business that not only helps you, but helps your entire community—by your efforts give work to hundreds. And then receive your reward—have your net profits taxed.

Where does the farmer come in with his high-priced wheat and corn? He sits on the fence rail and smiles as he manages to unload nearly all the taxation on the cities and the corporations.

By Heck! there comes the rural free delivery. I guess I can kill off this afternoon looking over a new catalogue. I guess I will have to take the trouble to write a letter to my Congressman asking him to hurry up parcel post. Jemima, tell my chauffeur to bring around the automobile at five o'clock, as I would like to take a little spin before supper. I guess these city fellows have a lot of fun at the expense of the farmer, but when it comes to the "show down" they ain't quite as smart as they think. Jes so! Jes so!

The tariff really does not make much difference to the hardware dealer. On Guns and almost everything else the foreign manufacturer has already been barred out. The duty on Razors will be advanced and we will also have a raise on Spear-point Fish Hooks, Snelled Hooks and Trout Flies. If we don't like to shave with

a poor American machine-made regular Razor, at \$1.50 to \$2.00 each, we can join the army of every-day-safety razor shavers.

As a matter of fact, the tariff does not hit the Hardware man hard because he has already been passed over the hot sands; he has already been "fixed."

But our dry goods friends are having a lovely time. Last year the price of dry goods made a spectacular decline. All stocks depreciated. None of the dry goods jobbers made any money. I am told dry goods merchants buy from 35 to 50 per cent. of their goods abroad. They send buyers to Europe and make their purchases twelve months in advance. They sell the goods while they are buying them. Now our poor dry goods neighbors, on account of the tariff, are way up in the air.

Retail dry goods merchants are only buying from hand to mouth on account of the uncertainty. We hardware men only get the reflex action of this condition through our general merchant customers who deal in dry goods.

Our dry goods brethren might as well make up their minds their hides are going to be nailed on the fence alongside those of the dealers in hardware.

But cheer up! Cheer up! Crops look good and stocks of merchandise on the shelves of the dealers were never lower in the history of the country.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—June is a great month, not only for college commencements, which never fail to give the caricaturist something to exploit, but also for all kinds of conventions, reunions, councils, royal conclaves and the like, until we wonder who it is that stays at home and minds the baby. We have just had our streets rendered gay by night and day with the dazzling uniforms of the "Nobles of the Mystic Shrine." They have come from far and near—from New Albany and the Philippines. Every automobile in town has been doing double duty, and the injunction to "sit tight" is entirely unnecessary with half a dozen in the tonneau. A few live camels even have enlivened the scene, presumably as an illustration of how long a living thing can go without a drink.

The Oriental splendor of scimitars and crescents and stars with draperies of scarlet and gold are over all until we might almost imagine that the coffin of the prophet had at last yielded to the force of gravitation and the occupant had come to earth again to find his most numerous and faithful followers in the Western hemisphere. Just where the Knights Templar come in, whose duty it is to reclaim the Holy Sepulchre, to rebuke the fez wearing sons of Islam, the deponent sayeth not. Safe it is to believe that his ostrich plume and his bright sword will come to light at the proper time at the triennial conclave, we believe, to bespeak the desired triumph.

So it comes to pass that the Confederate Veterans are filling up the town of Memphis and cheering for the son of General Grant. The Turners have agreed this coming week to take possession of Cincinnati, much to the glorification of that town—at once on the Ohio and over the Rhine.

The "boosters" for the various towns of more or less importance are arranging to induce these and many other similar bodies to come their way next year. It is astonishing how much earnest effort, oratorical and otherwise, is put forth to secure these associations, chapters, commanderies, patrons or tribes, whatever name they go by, for some one of the various competing towns. If a "little nonsense now and then" is a mark of the presence of the wise man, we are country full of prophets and sages, to be sure. The weather generally turns off extremely hot about the time the biggest crowd gets to town. The brass band doth blow, but that means nothing to a thermometer in the nineties.

Speaking of the weather, we have had a little too much rain, so that the river bottoms have again suffered inundation and possibly the crops have been damaged somewhat thereby. Business is free and normal and we hear very much less of the army of the unemployed. It has apparently been mustered out to the last private.

During the panic and its consequences there has been

immense development in looking after the welfare of the unfortunate. We have had plenty of time to think about it and attend to it. This we do not always have when the wheels of business are buzzing in our ears. The anti-tuberculosis movement and free legal aid for the unfortunate poor, pure milk for the babies, free children's hospital and the expansion of kindergartens—all of these have been largely developed in Louisville in the last year or two, to say nothing of the great schemes for the improvement of parks, playgrounds, new schools, &c. We are great and growing, and the main thing is not to split all of our old clothes before we can don the new suit. These fine new togs the good women are helping to cut and fit to the body politic quite as much as are the men.

Cleveland.

W. BINGHAM COMPANY.—"Onward, Cleveland, onward!" is the slogan we are now singing. Commencing Monday, June 7, the Cleveland Industrial Exposition opened its doors to the public. In this industrial building are 283 separate exhibits of products manufactured in Cleveland, and this could be doubled and tripled were there room. It certainly is one of the finest exhibits of industrial expansion any city in the United States has shown. This exhibition shows expansion in all kinds of business, mining, milling, manufacturing, steel, iron, textile and agricultural lines.

The city of Cleveland has within its corporate limits over 3000 factories, representing a money value of over \$200,000,000, certainly a monument to labor and capital. Cleveland, with a population of 550,000, the largest city in the State of Ohio, is expanding with leaps and bounds that are truly wonderful to contemplate.

In 1814 the schooner Pilot, of 60 tons capacity, was thought to be a large ship; to-day steamships carrying 10,000 tons enter the harbor of Cleveland and deliver their cargoes of ore and grain from the Lake Superior region, and make their return trip with coal and other merchandise.

Every Clevelander is proud of the expansion of his native or adopted city. It is no wonder that the five Hardware jobbing houses are enabled to extend their business over so wide a territory as they do, for there are so many articles in the Hardware line made in Cleveland, also in steel and other commodities, and with her facilities by rail and water for distributing these goods, there is no limit to the business growth that is coming to us.

Copious rains of late, as well as warm sunny days in this section, have helped the crops along a great deal. At the present time there is an immense demand for Lawn Mowers, Scythes, Grass Hooks and similar goods on account of the rapid growth in all vegetable and agricultural lines.

The recent advance in Nails and Wire seems to be maintained universally throughout the country, and it is intimated that further advances may be indulged in soon. The shipping tonnage of the American Steel & Wire Company in April and May, it is said, will exceed any previous record.

Business conditions in this section are very good and the outlook is quite hopeful. A speedy settlement of the tariff question is necessary to remove all fear of the future, and it is hoped and believed then that prosperity will be asserted in all our borders.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—Trade is looking very much as it showed in May. It is about normal, and, as stocks in hands of retail merchants are generally not large, the probability is that there will not be much change in volume of business for some weeks ahead.

This, however, will depend largely on the condition of the weather and crops. Thus far in June the weather has been very favorable for the growth of grass and most small grain, and at this writing the crop conditions are very fine. Grass, which is a very important factor, has come on finely, and probably has seldom made so good a showing at this season. Wheat is also in excellent shape.

Of course, there are many possible interferences ahead of us before harvest, but it is of great advantage for these crops to get so good a send off, and we are led to hope for a bountiful harvest.

Collections are about as usual, and on the whole conditions may be considered quite favorable.

Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY.—Trade conditions throughout the corn belt east and west of the Missouri River continue remarkably healthy. A large amount of building is projected, as well as in progress throughout the entire territory tributary to this market, and this condition represents the status of trade covering the entire trans-Missouri region. Labor of all kinds finds ready employment at good wages. The whole country west of the Missouri River may be reported as continuing in a prosperous condition, and as long as there is plenty of business in sight, backed by favorable climatic as well as financial conditions, the volume of trade for the next few months at least will be very satisfactory.

All that is essential just now is favorable weather for the growing crops, and with this important feature assured there can be no doubt as to the business end of the situation.

The general market reflects strength throughout, especially in certain lines, and this fact alone lends encouragement as well as confidence to general operations.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—Our business holds up remarkably well for this season of the year. June and July are usually our dullest months, but this June is proving to be quite an exception to the rule. Our sales are showing a big increase over last June and will probably be as good or better than June two years ago.

While we have had a large amount of rain in this section, we doubt if it has done very much damage, as most all crops are looking fine. The wheat crop in Middle Tennessee is going to be above the average, and farmers are feeling good, and many of them are now cutting wheat and are counting on getting a big price for it, which they no doubt will do. This is going to put a large amount of money into circulation within the next 30 days.

We understand that cotton and corn crops all through the South are looking well. Prospects for fall business are excellent. We believe business this fall is going to be something phenomenal, possibly back to old times or a record breaker. Collections are keeping up fine.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—We are now nearly ending the first six months of the year 1909, and trade during the five and a half months has varied somewhat in this section. First from the fear that existed largely for nearly two months owing to the trouble in the coal mining districts between the owners and the workmen. This naturally had a very bad effect upon the retail trade, and that, of course, extended to the jobbing business. This matter, however, was properly and satisfactorily adjusted and settled by a continuation of the prior agreement. Then came the tariff bills that are before Congress, and which for a long time have been before the Senate. The matter largely before them is the great importance of arranging the tariff so as to secure sufficient revenue for the materially increased expenses of the United States. The tariff question has naturally had an effect upon manufacturers as well as buyers. However, this will within a few weeks be settled, after which we look for greatly increased trade.

The national banks have all had a prosperous year, and individual deposits in banks and trust companies have increased the last year and a half and have been exceedingly large. Industrial and commercial conditions have also largely improved, and it is predicted by those high in authority that the crisis which began about 18 months ago is, or should be, entirely ended, and that no fears or anxiety should now exist. Prices of stocks have practically advanced to the prices of two years ago and sales have largely increased, and the railroads have

given fairly large orders for materials. It is also reported by the Government that the crops of winter wheat and spring wheat are large and greater than last year, and that through the South the cotton crops look wonderfully well, and it is anticipated will be large. It is reported that farmers throughout the country have confidence that the year 1909 will be quite equal to the early part of the year 1907. It is believed that there are more acres in cultivation in our country than ever before.

Trade for the last two months in this section has been quite fair and an improved trade is anticipated for the fall. The sale of Lawn Mowers has largely increased this year, especially those of high grade.

From what we hear from the general retail trade, as well as jobbers and manufacturers, all have confidence in an improvement in trade for the coming half of the year.

NOTES ON PRICES

Wire Nails.—A fair volume of business is still coming to the mills, which are giving their attention principally to the shipment of goods purchased before the advance. Their stocks have become exhausted and it is understood there is a little delay in executing orders, the volume of which placed at the low figure is larger than the trade at first realized. Prices are firmly maintained and the market is in excellent condition, with a strong tone. The jobbers have purchased very liberally and would welcome another advance. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$1.70
Carload lots to retail merchants.....	1.75
Less than carloads to jobbers.....	1.75
Less than carloads to retail merchants.....	1.85

New York.—There is a steady demand for small lots of Wire Nails from store, although the volume of business is not large. It is evident that merchants are buying sufficient Nails to keep stocks assorted to supply the requirements of customers. Wire Nails are held in small lots at store, at \$1.90 per keg, base.

Chicago.—New demand for Wire Nails has slackened up somewhat, but it is yet rather beyond than under expectations in view of the heavy buying both before and since the late advance of 10 cents a keg. The leading mills, having exhausted warehouse stocks, are beginning to lag in shipments, and are now about two weeks behind in the execution and shipment of orders. From now on through July new buying is expected to fall off, but the orders in hand will keep the mills busy through this period. Considerable pressure is being brought by the trade to bear upon the mills for a further advance of prices, and while such action is not regarded as improbable, no announcement concerning it has up to this time been made. Prices are firm at the regular quotations, which are as follows: \$1.88, Chicago, in car lots to jobbers, and \$1.93 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—A fair amount of new business is being entered by the mills at the prevailing price of \$1.70, base, per keg, f.o.b. Pittsburgh, but the large majority of the trade covered its requirements for 60 days ahead or longer, before the advance of 10 cents per keg was made. Specifications against orders have been received very freely by the mills, and shipments of Wire Nails in the past six weeks or longer have been enormously heavy. There is still some intimation of a further advance in Wire products of about \$2 a ton, which would make the price of Nails \$1.80 per keg, but nothing official has been given out regarding this by any of the mills. We may say that prices on Wire Nails are firm, and all orders entered by the mills since May 15 have been at full price. Mills are still insisting that specifications must accompany all orders and which are to be shipped out at convenience of the mill. We quote Wire Nails at \$1.70 per keg in carload and larger lots, f.o.b. Pittsburgh.

Cut Nails.—Conditions in the Cut Nail market have been gradually improving for the past two or three weeks

from the manufacturers' standpoint, and offers which would have been accepted by the mills are no longer considered. At the prices ruling, immediately after the reductions by Wire Nail mills, early in May, some of the mills booked enough business to keep them busy some time, and specifications on these contracts are being received quite freely. Regular quotations, which have been merely nominal for some time, are still open to concessions of 10 to 15 cents per keg from the regular quotation of \$1.80 per keg, base, f.o.b. Pittsburgh, for carload lots. Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails in the Western market, but in the East this differential is not observed.

New York.—The local market for Cut Nails is stronger than that for Wire Nails, as there are not as many of the former in this market that were bought at the low prices as there are of the latter. Manufacturers are not willing to accept orders at as low prices as they were two or three weeks ago. Consequently some of the Nail houses are holding small lots of Cut Nails at store at \$1.90 to \$1.95 per keg, base.

Chicago.—The condition of the Cut Nail market shows considerable betterment, so far as demand is concerned. One feature that lends a strengthening influence is the promising prospects of greater activity in car building and car repair work, which when realized means greater consumption of Cut Nails. Prices are steadier and the market is fairly firm at current quotations, which are as follows: In car lots, to Jobbers, Iron Cut Nails, \$2; Steel Cut Nails, \$1.80.

Pittsburgh.—New demand for Cut Nails is showing continued improvement, and specifications against contracts are coming in more freely than for some time. The tone of the market is firmer, and concessions in prices are harder to obtain. We quote Cut Nails at the nominal price of \$1.80, f.o.b. Pittsburgh, but this is still being shaded from 10 to 15 cents a keg, depending on the order. No Iron Cut Nails have been made in the Pittsburgh District for many years, and very few, if any, of these kind of Nails come into the market.

Barb Wire.—As the season progresses new business becomes lighter, but mills are busy making shipments on contracts placed some time ago. The weather has been more favorable for Fence building than for farm work for an unusually long period, which has extended the demand beyond the usual spring limit. Prices are well maintained at regular quotations, which are as follows, f.o.b. Pittsburgh:

	Painted.	Gal.
Jobbers, carload lots.....	\$1.70	\$2.00
Retailers, carload lots.....	1.75	2.05
Retailers, less than carload lots.....	1.85	2.15

Chicago.—As compared with the volume of specifications against contracts, new buying is light, but for the season is keeping up remarkably well. Trade for the spring season, ordinarily well over by this time, has been unusually prolonged by backward weather. It is tapering off, however, and not much new tonnage is expected from now on until fall buying begins. Prices are being firmly maintained. We quote as follows: Jobbers, Chicago, car lots, Painted, \$1.88; Galvanized, \$2.18; to retailers, car lots, Painted, \$1.93; Galvanized, \$2.23; retailers, less than car lots, Painted, \$2.03; Galvanized, \$2.33; Staples, bright, in car lots, \$1.88; Galvanized, \$2.18; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—The season is pretty well advanced, and new orders for Barb Wire are very light and only for small lots to meet current needs. Shipments by the mills are quite heavy against contracts placed some time ago, specifications having been received very freely. It is stated that one or two of the leading makers of Barb Wire are somewhat behind in deliveries. Prices are very firm, and there are intimations of an advance in the near future, but this is not officially confirmed. We quote Galvanized Barb Wire at \$2 and Painted at \$1.70 in carloads and larger lots, f.o.b., Pittsburgh.

Plain Wire.—New business received by the mills shows a gradual decrease in volume as the season progresses. Manufacturers are busy, however, filling

orders, and shipments from mill are heavy. The market is firm and quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of \$1.50 for Plain and \$1.80 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the usual price to retailers being 5 cents additional:

Nos.	10	11	12 & 12½	13	14	15	16
Annealed	\$1.50	1.55	1.60	1.65	1.75	1.85	1.95
Galvanized	1.80	1.85	1.90	1.95	2.05	2.15	2.25

Chicago.—Specifications against contracts constitute the bulk of the tonnage coming to the mills, though some new orders are being entered. Fence manufacturers and other consumers of Plain Wire are crowding for shipments, which are beginning to fall behind. Prices are firm at the following quotations: Car lots, to jobbers, \$1.68, base, f.o.b. Chicago.

Pittsburgh.—Specifications against the heavy contracts placed by consumers prior to the advance of \$2 a ton in prices have been coming in very freely; shipments by the mills in the last six weeks or longer have been very heavy. New orders are keeping up fairly well, but the majority of the trade covered its requirements prior to the advance in prices. The market is firm on the basis of \$1.50 for Plain and \$1.80 for Galvanized, f.o.b. Pittsburgh, in carloads and larger lots, terms 60 days, or 2 per cent. discount for cash in 10 days.

Sheet Zinc.—An advance of $\frac{1}{4}$ cent per pound is announced by the manufacturers of Sheet Zinc under date June 14. The price is thus made \$7 per 100 lb., f.o.b. mill, for Sheet Zinc in 600-lb. casks of the thickness from No. 9 to 19, inclusive, and of the widths from 32 to 56 in., inclusive, and of lengths from 72 to 96 in., inclusive. The discounts given in quantities are as follows:

	Cash			Per cent.
	with order.	Quantity.	Total.	
Carload lots	3	5	8	
9000-lb. lots	3	3	6	
6000-lb. lots	3	2	5	
3000-lb. lots	3	1	4	
Less than 3000 lb.	3	0	3	

Horse Shoes.—The Horse Shoe market continues to show the irregularities which have prevailed for some time and the condition is such as to suggest that the manufacturers may deem it advisable to take some action in regard to prices. There seems to be on some sides a disposition to make concessions slightly in excess of those which are recognized as regular by the manufacturers. A good deal of this irregularity is credited to the development of outside competition.

Wood Screws.—The market for Wood Screws is still somewhat unsettled, but manufacturers have been conferring with a view to correcting existing irregularities, with some prospect, it is thought, that an understanding may be reached which will put the market in a better shape.

Corn Poppers.—The prices for Corn Poppers for the coming season have recently been announced and are not materially different from those formerly in force.

Strap and T Hinges.—This is a line which is not in an entirely satisfactory condition, as competition, some of it comparatively new, has developed some inequalities.

Carriage Bolts, Plow Bolts, Machine Bolts, Etc.—There has been no marked change in the prices of this line of goods, but the market is somewhat irregular and, notwithstanding the efforts of the manufacturers to maintain prices on an even level, there has been the development of slightly lower quotations in some lines.

Steel Express Wagons.—The demoralized condition of juvenile Steel Express Wagon prices, to which reference was recently made in our columns, continues to be a prominent feature in this line, with no immediate prospect of change. This condition is causing some buyers to hold orders until such a time as the market becomes more settled. It has been claimed that where extremely low prices are quoted they apply to Wagons not standard, either in size, construction or finish, and that prices of standard made Wagons possessing distinctive features of merit have about reached a cost basis.

Rope.—The unsettled condition of the Hemp market has become less pronounced and the demand from Rope manufacturers for the lower grades of Hemp is larger

than for the better ones. Quotations have fallen off on higher grades of Manila Hemp and have about held their own on the lower grades. Sisal Hemp is somewhat stronger than last week, with little offered for sale. The general run of orders for Rope are for comparatively small quantities, although some larger orders have been filled during the week. Regular prices have undergone no change, but the market is not regarded as strong on some grades. The market may be represented by $\frac{8}{2}$ to $\frac{9}{4}$ cents per pound, base, for Pure Manila Rope of the highest grade, and a corresponding quality of Sisal at $\frac{7}{2}$ to $\frac{8}{3}$ cents. Lower grades of Pure Manila can be purchased at $\frac{1}{4}$ to $\frac{1}{2}$ cent less than the foregoing quotations. Second grade Sisal is quoted at $6\frac{1}{2}$ cents and third grade at 6 cents per pound. Jute, $\frac{1}{4}$ in. and up, No. 1, is quoted at $6\frac{1}{4}$ to $6\frac{1}{2}$ cents and No. 2 at $5\frac{1}{4}$ to $5\frac{1}{2}$ cents.

Window Glass.—The demand still is disappointing to manufacturers, as the output continues to exceed the requirements of the trade. Workers in Glass factories are dissatisfied with the small amount of money they are earning. Warmer weather and the dissatisfaction of the workmen are calculated to curtail the output of the factories to some extent. Prices recommended by the Eastern Window Glass Jobbers' Association, from jobbers' list, October 1, 1903, for territory east of the Mississippi are as follows: New England and Middle States, from jobbers', Single, 90 and 35 per cent; Double, 90 and 40 per cent.; factory shipments, Single, 90 and 45 per cent.; Double, 90 and 50 per cent.; some portions of Pennsylvania are accorded discounts 5 per cent. better than other States; in the Southern States discounts vary from 90 and 25 to 90 and 40 per cent. on Single and from 90 and 30 to 90 and 45 per cent. on Double, from jobbers.

Linseed Oil.—An advance of 2 cents per gallon was made in the price of Oil last week, which verified the prediction of higher prices. The statistical position of Seed is strong and higher prices for Oil before the new crop of Seed is available are regarded by some as possible. Specifications on contract orders are in fairly good volume. There are comparatively few new contracts being placed and crushers are not disposed to push sales at present prices. Quotations for 5 bbl. or more are as follows: State and Western Raw, 60 cents per gallon; City Raw, 61 cents per gallon, with the usual advance of 1 cent for less than 5-bbl. lots. Boiled Oil, 1 cent advance on Raw.

Spirits Turpentine.—The market has advanced rapidly during the week, the net result being an increase of $1\frac{1}{2}$ cents per gallon in the local market. The enhanced values are attributed to active business in the Savannah market. The local market is represented by the following quotations: Oil Barrels, $42\frac{1}{2}$ to 43 cents; Machine Made Barrels, 43 to $43\frac{1}{2}$ cents per gallon.

On the 11th inst. the establishment of the James Walker Hardware Company, Montreal, Que., was seriously damaged by fire, which started in the basement and extended to the first and second floors, water injuring the stock from the fourth floor down. The loss is estimated at about \$60,000, fully covered by insurance. The company expects that business will be suspended for only a few days.

"PAINT GUARANTEES" is the title of a pamphlet which has just been issued by the Bureau of Promotion and Development of the Paint Manufacturers' Association of the United States, 623 The Bourse, Philadelphia. The author is G. B. Heckel, secretary of the association, who presents this important subject in a very interesting and able manner.

THE RUGG-BALL MFG. COMPANY, LTD., manufacturer of Hand Hay Rakes, Woolen and Steel Snow Shovels and turned stock, contemplates moving from Waterville, Que., and is looking for a suitable location in a thriving town in central Canada, where good railroad and other facilities for manufacturing are available.

THE House Furnishing Review has removed from its former address, 59 Park place, New York, to the Postal Telegraph Building, 253 Broadway.

AN OLD HARDWARE PRINT.

WE are indebted to the well-known machinery house of Potter & Stainforth, Boston, Mass., for the opportunity to reproduce herewith an old print found in a collection recently purchased. It represents a figure made of Hardware articles which, as nearly as can be estimated, dates back to about 1830. This fellow is, therefore, regarded as the progenitor of the numerous race of artificial Hardwaremen who have risen up for



A Hardwareman of 80 Years Ago.

advertising purposes during succeeding decades. Interesting features of the goods that make the man—his hat being an old-fashioned Sauce Pan—are an old Warming Pan, an obsolete Oil Lamp and a pair of Bellows. The other articles show for themselves, including Pots and Kettles, Planes, Stove Pipe, Thimbles, Chisels, Saw, Auger Bit, Drawing Knife, Flat Iron, Fire Shovel, Hammer, Sleigh Bells, &c.

Educating Implement and Vehicle Dealers.

Wagon Manufacturers' Campaign for Elevating Business Standards.

THROUGH its secretary, E. W. McCullough, is inaugurating an active campaign for the education of implement and vehicle dealers with an idea of raising the standards of the business, and emphasizing the necessity of making adequate profits on sales. It is believed that the most effective method of accomplishing this end is to show the dealers what their costs are and how vain is the hope of their continuing in business unless they charge reasonable advances over and above costs and selling expenses.

Personnel of the Trade Is Steadily Declining.

In circular correspondence it is brought out that the personnel of the retail Wagon and Implement trade has been steadily declining, which is ascribed to the fact which can be demonstrated that from 20 to 40 out of every 100 dealers fail, sell out or give up the line every year because it has not paid. The following causes are given for this condition of affairs:

First, lack of knowledge as to complete costs and expenses, which leads to selling without sufficient profit.

Second, lack of business experience since many such dealers come from the farm or elsewhere and have had no business training; while they are getting experience they demoralize selling prices.

In the case of Implement dealers who handle Hardware, &c., it is declared that in a majority of instances the profit of the Hardware line is the only thing that enables them to continue in business.

An Effort to Raise the Standard.

In the face of this condition of affairs it is argued that all manufacturers and jobbers who seek a market through implement and vehicle dealers, agents, &c., should co-operate in raising the standard of the business. It is believed that this can best be done by educating those who are engaged in it to a better knowledge of business methods, and, above all, a more accurate idea of their expense costs. To this end and with the idea of collecting data which will afford a fair basis of presenting the matter, the following blank is being circulated among the implement and vehicle men with the request that they fill it out and return it to the secretary of the association:

COST OF DOING BUSINESS.	
Cost of conducting a retail.....	business
at.....	by.....
for one year commencing.....	ending.....
Amount of capital employed \$.....	
Gross sales for year.....	\$.....
	Expenses.
	Amount or Per cent.
1. Interest on all capital invested (including borrowed money).....	\$.....
2. Rent. (If the owner, what the property would rent for should be charged).....	
3. Salaries. (Wages of all help, including members of firm).....	
4. Express, telephone and telegraph (not charged to customers).....	
5. Advertising.....	
6. Stationery, office supplies, postage and envelopes.....	
7. Drayage. (Goods received and goods delivered).....	
8. Fuel and lights.....	
9. Livery, horse feed, shoeing and wagon repairs.....	
10. Insurance and taxes.....	
11. Traveling expenses.....	
12. Store supplies and repairs.....	
13. Donations and subscriptions.....	
14. Losses on bad accounts and notes.....	
15. Attorney's fees and costs for collecting.....	
16. Depreciation on stock carried over.....	
17. Deductions and allowances to customers.....	
18. Other expenses. (State what they are).....	
Total	

In the two left-hand columns place either the total amount of each item of expense for the year, or state what per cent. it is of your total or gross sales. If in all cases you cannot give exact figures or percentage, mark all estimates—"EST."

Blank Which Is Being Sent Out by the National Wagon Manufacturers' Association with a View of Obtaining Data for Raising the Standard of the Implement and Vehicle Business.

Manufacturers and larger merchants are urged to prosecute the campaign by correspondence and through their salesmen, and especially in connection with the conventions at which such matters are proper subjects for discussion.

OLD GUARD SOUTHERN HARDWARE SALES MEN.

DURING the conventions last week at Pittsburgh the members of the Old Guard Southern Hardware Salesmen, a large number of whom were in attendance, held a meeting at the Hotel Schenley. The following officers were chosen for the ensuing year: President, Charles F. Forsyth; first vice-president, O. C. Mead; second vice-president, John K. Wilson; secretary-treasurer, Fred M. Huggins; Executive Committee, D. K. Stucki, T. H. Gossett, F. S. Seeley, John Hoen, H. P. Chenoweth and Guy Mitchell. H. H. Beers, ex-president, was made a member of the Advisory Board.

Churchill Hardware Co.'s 25th Anniversary Sales.

Tinware at the Right Prices Always Secures Attention.

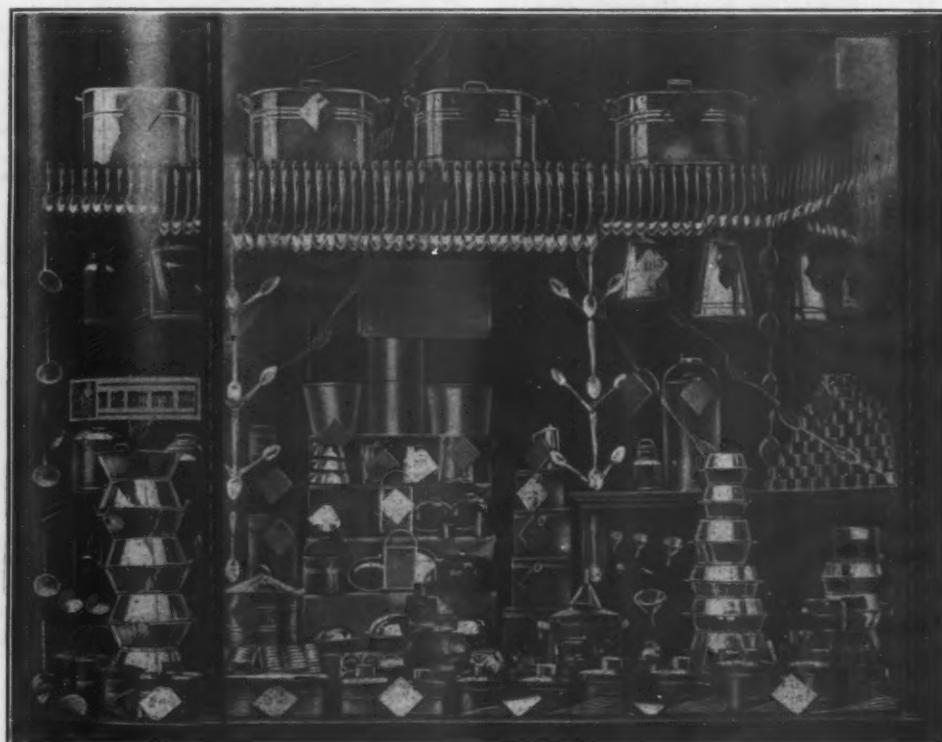
IN recognition of its twenty-fifth anniversary the Churchill Hardware Company, Galesburg, Ill., is holding 25 special sales, one every other week throughout the year. During each of these sales some one particular line of goods is sold at especially low prices. The plan has proved a successful one in stimulating a profitable business and has afforded the concern a good deal of advertising ammunition. The accompanying illustration represents a photograph of sale No. 1, which was confined to Tinware and brought in a lot of business, the experience of the company being that a Tinware sale will always bring the people in and lead to large sales regardless of how often they are given, since people are

HARDWARE MERCHANTS' CATALOGUES, BULLETINS, ETC.

"**T**HE Reason Why" is the title under which F. P. Rutherford, Hardware and Implement merchant, Rotan, Texas, issues a catalogue of 28 pages devoted to Wagons, Buggies, Ranges, Sewing Machines, Cultivators, Washing Machines, &c. The catalogue is intended to furnish evidence why Mr. Rutherford makes claims in regard to values to be found in his store.

The May number of "Hardware News," issued by C. B. Smith, Shrewsbury, Pa., is a well printed four-page bulletin, in which, it is stated, many illustrations appear of new and seasonable goods not usually carried in a town of that size.

Peter Hoffman, wholesale and retail Hardware, Stoves, &c., Sedalia, Mo., recently called attention to a special sale of Enamelled Ware and miscellaneous Hardware through the medium of a large poster, attractively



Tinware Window of Churchill Hardware Company.

always ready to buy Tinware provided they think they are getting a bargain.

The other window of the company adjoining the one illustrated was at the same time filled entirely with household articles, which are always being bought for the kitchen, laundry, &c., such as Scrubbing Brushes, Tubs, Pails, Wringers, Ironing Boards, Mops, Brooms, Carpet Sweepers, Clothes Pins, Clothes Lines, Lanterns, Carpet Beaters, Sad Irons, Dusters, &c. As already stated, both these windows were productive of good results.

THE CROISSANT HARDWARE COMPANY, 202½-204 Washington avenue, Albany, N. Y., is remodeling and reorganizing the business formerly conducted as a firm under the title M. Croissant, modernizing both the store and fittings, as well as adapting the stock to present requirements. The officers of the company are John Croissant, president and general manager; Charles F. Frederick, vice-president and treasurer; John M. Croissant, secretary, and Gilbert B. Thompson, assistant manager.

THE PLYMOUTH CORDAGE COMPANY, Plymouth, Mass., has issued a pamphlet devoted to its Binder Twine product, the quality of which is enforced. It is embellished with illustrations relative to the growth, harvesting and marketing of Hemp.

printed, which illustrated and priced many of the articles included in the offer.

The Cleveland-Matthews Hardware Company, Pine Bluff, Ark., has lately issued its spring and summer bulletin in the form of a four-page folder giving illustrations of and prices on a number of seasonable goods.

The M. J. Carnahan Company, Washington, Ind., has lately distributed its first annual catalogue, a pamphlet of 54 pages. Besides calling attention to many of the lines carried in stock, it gives tables and other information of general interest to housewives, farmers and builders.

A large paged catalogue of 64 pages has been issued by J. M. Thompson & Son Hardware Company, Owatonna, Minn., in which many selections from the company's extensive assortment of goods are illustrated and priced. The business of this house is done on a cash basis, and emphasis is laid on the attractive prices which they are thus in a position to make and the excellent service rendered.

The Wilton-Nicholas Hardware Company, Inc., Harrisonburg, Va., has become the Wilton Hardware Company, Inc. The change is in name only and will not affect the management of the business.

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

WHITMAN & BARNES MFG. COMPANY, Akron, Ohio: Catalogue No. 72, relating to the company's High Speed Tools. These include Diamond Twist Drills and Reamers, Norka Twist Drills, Hercules Twist Drills, Economy Flat Drills and Track Bits, Drill Chucks, Sockets, Sleeves, Arbors, Mandrels, &c.

WRIGHT WRENCH COMPANY, Canton, Ohio: Illustrated descriptive circular of the Wright Wrench, which can be adjusted and used with one hand.

F. A. SCHMOEGER, Sterling, Ill.: Circular relating to Stay Shiny, a tarnish preventive, adapted to use on automobile fittings, &c.; also circular devoted to Magiclean Wood Polish for cleaning, finishing and polishing.

UNIVERSAL CASTER & FOUNDRY COMPANY, Newark, N. J., New York office, 1170 Broadway: Illustrated catalogue and price-list No. 75, of Piano Forte, Metallic Bedstead and Furniture Casters. These goods are shown in a variety of patterns.

C. J. HARTLEY COMPANY, Decatur, Ill.: Catalogue devoted to the Hartley Twentieth Century Double Acting Bracket Force Pumps.

ENAMELED STEEL SIGN COMPANY, 12 State street, Chicago, Ill.: Enamelled Signs suitable for wagons, fences, stores and other purposes, made of tin, steel and cardboard. The company also manufactures Chewing Gum Machines.

EMERSON ELECTRIC MFG. COMPANY, St. Louis, Mo.: Bulletin No. 3908, relating to Factory Sewing Machine Motors for Singer types 31-15 and 31-20 machines, for alternating and direct current.

KELLY MFG. COMPANY, Waterloo, Iowa: Catalogue No. 15, illustrating Galvanized Steel Tanks, Galvanized Culverts, Graders, Drags and Road Making Machinery, Feed Cookers, Coal Chutes, Smoke Stacks, Wind Mill Regulators, Farm Carts, Gliding Settee, &c.

SOUTH BEND TOY MFG. COMPANY, South Bend, Ind.: Catalogue devoted to English Doll Carriages, Collapsible and Semicollapsible Steel Doll Go-Carts, Stationary and Folding Reed Body Go-Carts, &c. The company also manufactures Coaster Wagons and Wooden Toys.

BRAINERD MFG. COMPANY, East Rochester, N. Y.: Supplement No. 5 to its 1907 catalogue, showing Brass, Bronze and Steel Hinges, Hasps, Corners, Pulls, Brackets; also Coat and Hat Hooks and Glass Knobs.

ANDREWS WIRE & IRON WORKS, Rockford, Ill.: Catalogue No. 28, illustrating Bread Toasters, Sink Strainers, Flue Stops, Carpet Beaters, Wire Kitchen Articles, Garment Hangers, Wire Baskets and Trays, &c.

STEWARD & ROMAINE MFG. COMPANY, and PHILADELPHIA EXPANSION BOLT WORKS, 124 North Sixth street, Philadelphia, Pa.: Catalogue No. 30, relating to Star and Stone Drills, Expansion Bolts, Pipe Hangers, Sanitary Plumbers' Specialties, Toggle or Anchor Bolts, &c.

ARCADE MFG. COMPANY, Freeport, Ill.: Catalogue No. 20, of more than 200 pages, illustrating Toy Banks, Coffee Mills, Spice Cabinets, Towel Rollers, Mops, Spring Hinges, Screen Door Checks, Cork Pullers, Bottle Openers, Ice Picks and Shaves, Shelf Hardware, Nut Crackers, Cast Hammers, &c.

BUFFALO WIRE WORKS COMPANY, formerly Scheeler's Sons, 316-320 Terrace, Buffalo, N. Y.: Folder No. 57, illustrating Wire Settees and Chairs, Ornamental Iron Settees, Wire and Iron Tree Guards, Wire Vine Trainers, &c.

FERROSTEEL COMPANY, Cleveland, Ohio: Catalogue devoted to Registers, Ventilators, Faces, Borders, Grilles and Screens, made in cast iron, semisteel, all wrought steel, solid brass and solid bronze.

GENDRON WHEEL COMPANY, Toledo, Ohio: Catalogue showing the Pioneer line of Children's Vehicles, including

Iron Coaster and Farm Wagons, Velocipedes, Juvenile Automobiles, Hand Cars, Coasters, Toy Barrows, Push Carts, &c.

O. K. TOOL HOLDER COMPANY, Shelton, Conn.: Catalogue devoted to the O. K. System of Tool Holders and Tools for lathes, planers, shapers, boring mills, &c.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate.

FROM L. G. KREISLE, who has moved his stock into a larger building recently purchased by him in Victoria, Texas, where he is conducting a wholesale and retail business in Shelf and Heavy Hardware, Stoves, Tinware, House Furnishings, Window Glass, Agricultural Implements, Paints, Sporting Goods, Wagons and Buggies.

FROM THE PRINCE-MARTIN HARDWARE COMPANY, recently organized in Fort Morgan, Colo., handling Shelf and Heavy Hardware, Stoves, Tinware, House Furnishings, Sporting Goods and Fencing. The company do all kinds of Furnace, Cornice and Sheet Metal Work.

FROM F. W. McCORMICK, who has put in a stock of Hardware at 61 East Leonard street, Grand Rapids, Mich. Mr. McCormick has been one of the sales force of the Clark-Weaver Company of that city for several years.

FROM I. G. WILLIAMS, who has engaged in business in Pleasantville, Iowa, handling Shelf and Heavy Hardware, Stoves, Tinware, Sporting Goods and Pumps. Plumbing is also carried on.

FROM DUFFY BROS. HARDWARE COMPANY, Pawtucket, R. I., whose Hardware stock has been totally destroyed by fire.

FROM DE WITT & BROWN, who have purchased the Hardware business of Mankey & Wright, in Newell, Iowa.

FROM R. J. DE VOE, who has purchased the business of Geo. W. Potter in Saranac, Mich., handling Shelf and Heavy Hardware, Stoves, Tinware, House Furnishings, Window Glass, Agricultural Implements, Sporting Goods.

FROM DeLOACH HARDWARE COMPANY, Demopolis, Ala., which has just opened up in the wholesale and retail business, handling Hardware, Stoves, Wagons and Buggies, Saddlery and Harness, Queensware, Tinware, Farming Implements, &c. The members of this firm were formerly identified with the DeLoach-MacMillen Hardware Company of Demopolis, but recently disposed of their interest.

FROM RITER HARDWARE & IMPLEMENT COMPANY, Aspermont, Texas, which has been incorporated with a capital stock of \$10,000, handling Shelf and Heavy Hardware, Stoves, Tinware, Housefurnishings, Agricultural Implements and Sporting Goods.

FROM T. J. KIRBY, who purchased the business of Moore & Adams, Tobias, Neb., handling Shelf and Heavy Hardware, Stoves, Tinware, Housefurnishings, Window Glass, Paints, Oils, Sporting Goods, Harness and Furniture.

FROM J. P. AREND'S & CO., who opened a new store in Aplington, Iowa, and carry Shelf and Heavy Hardware, Stoves, Tinware, Window Glass, Paints, Oils and Sporting Goods.

FROM EDWARD MEENTS, who has purchased the business of Lenz & Collins, Carroll, Iowa, including Shelf and Heavy Hardware, Stoves, Tinware, Window Glass, Paints, Oils and Sporting Goods.



THE QUESTION BOX

This department is open for the discussion of questions which arise in the practical conduct of the Hardware business. Our readers are invited to contribute, submitting inquiries or answering questions.

Correspondents are expected to give their names and addresses, but in order to encourage frank expressions of opinion the advice of our correspondents will be treated in confidence, names and addresses not being published.

For convenience, Questions or Answers should be addressed to THE IRON AGE QUESTION BOX, 14-16 PARK PLACE, NEW YORK.

Cultivating Farmers' Trade.

One of the most important questions which have come into the Question Box is in regard to methods by which merchants can secure a good share of the trade of the farmers in the surrounding country. In reply to the query the correspondent whose letter is given below mentions some of the difficulties he encounters, while at the same time making it evident that the well to do farmers in his vicinity are worth cultivating.

FROM AN ILLINOIS HARDWARE MERCHANT: The writer finds farmers' trade entirely different from what it was 10 or more years ago. Now nearly every farmer has a telephone. All have mail delivery and very few drive to town in a wagon or conveyance large enough to carry bulky hardware. The farmer to-

comes to town in day comes to town in top buggy or automobile, or other carriage, in automobile, in interurban or steam car (we have lines in eight different directions). Our city has 35,000 people, with a good many small towns from 8 to 15 miles around us. Farmers ship their stock and produce from these nearer to home places, and when they come to our city they come as described above. No occasion for coming with wagons. Stores in these smaller towns can and do sell Nails, Farm Tools, Stoves, Barb Wire and Fencing as cheap as we can, and the farmer buys of them when hauling his produce.

Farmers come to our town with their families and buy shoes, clothing, dry goods, &c., and carry home under buggy seat or on cars. The farmer to-day expects mer-

chants to deliver Furniture, Farm Machinery, Stoves, &c., and some dealers are doing so. We have tried delivering Stoves, but found it took too much time for profit, and interfered with our city business. In view of all this we have not cultivated farmers' trade lately. We keep before them through the daily paper and get some of their trade—a Gun, a Hammock, Cutlery, Tools, &c.—because we carry larger assortments than his nearby dealer. I think your Question Box a good scheme.

Handling Baseball Bats.

Another reply to the inquiry for a satisfactory method of handling baseball bats has been received from a Connecticut firm. The arrangement is illustrated in the accompanying cut and described in the following letter of our correspondent:

FROM A CONNECTICUT HARDWARE MERCHANT: We became so crowded for floor room that we are now keeping the Bats in a counter at the front of our store, which is deep enough to take the Bats lengthwise. This counter has a ledge shelf above on which we keep Baseball and Tennis Goods, and it makes a good counter

shelf. The Bats we keep in the bins underneath. It is very convenient to get at the Bats this way, but it does not make much of a display, as the handle ends are all



Bins for Keeping Baseball Bats at the Front of the Store, in Use by a Connecticut Firm.

that can be seen. A customer, however, can pull out the bats and examine them.

We think your method regarding display of goods will draw out some good information and be of practical value to the trade.

Careful Buying in the Retail Hardware Store.

Whether careful buying pays is evidently a question which is regarded by our readers with a good deal of interest. Views differ somewhat as to the extent to which it is important for the retail merchant to endeavor to obtain low prices on the goods he buys. A few of our correspondents apparently leave this matter very much to the salesmen who take their orders, but the greater number recognize the necessity of getting as low prices as they can, and to this end on important purchases obtain quotations from various houses, whether manufacturers or jobbers.

Some look at the question theoretically and are disposed to claim that a small retailer is entitled to prices as low as are given to the large retail houses, so that he may be in a position to meet their competition.

There is a general recognition of the fact that it is necessary for the merchants throughout the country to get goods at as favorable prices as possible, so as to be able to cope with the catalogue house and the department stores of the larger cities, and some Hardware merchants have thought of Co-operative Buying as a possible expedient which may be resorted to with a view to putting them, so far as price is concerned, on pretty nearly the basis of the mail order concerns with whom they have to compete. It is generally recognized, however, that there are many practical difficulties in the way of thus uniting the orders of several merchants. Touching on this phase of the subject we have the following letters:

FROM ILLINOIS: To our knowledge co-operative buying has never been a very great success wherever attempted. The slight possible advantage to be gained by co-operative buying would be almost overbalanced by its cost. Our plan for meeting catalogue house competition is the refusal on the part of merchants to purchase goods of manufacturers that sell to catalogue houses. Surely, if the catalogue houses cannot get the goods they cannot sell them, and thus a great amount of their competition would be eliminated. We believe in co-operative refusal to buy rather than co-operation for the purpose of buying.

FROM IOWA: One question in regard to this has always afforded some interesting study, and I would like to have the opinion of some fellow-retailers in regard to it. Suppose co-operative buying develops to an extent that it materially affects the business of the large jobbers. What is to prevent their going into the catalogue house business direct to the consumer, and developing ten times

the competition that now exists? Under the conditions would not the last state of the retail trade be worse than the first?

FROM INDIANA: Locations and local conditions affect this question very much. I believe in handling different brands and makes from those my competitors do. If we buy together we handle the same brand. I cannot see much in syndicate buying. Be friendly and neighborly with your competitors, but never get in your mind that they are running their business solely for your benefit. I believe there is something in what Sis Hopkins says.

FROM WISCONSIN: Co-operative buying is feasible if a scheme can be devised whereby only prompt paying customers that are not chronic kickers can be limited to its benefits, but with the variation there is in different dealers' ways of doing business and their dispositions, it is a pretty large partnership to work satisfactorily. I believe the Question Box can be made a very profitable feature of your valuable paper.

FROM NEW YORK STATE: It is not necessary to co-operate with your competitors in very many goods in order to be able to buy your goods at the right price. There are some goods, of course, that take a quantity price, but any firm of good standing that is punctual in its payments and conservative can buy its needs very nearly as low as if it bought 10 times the amount of its actual requirements.

A Conference on Parcel Post.

National Committee Calls on the President, Postmaster-General and Others.

(FROM OUR SPECIAL CORRESPONDENT.)

WASHINGTON, D. C., June 15, 1909.

A COMMITTEE of the officers of the National Retail Hardware Association arrived here yesterday to confer with the President, the Postmaster-General and the Congressional leaders concerning the parcel post question and to express their opposition to this legislation in any form whatever. The committee, which was appointed at the Milwaukee convention last month, was composed of President Charles H. Williams, Streator, Ill.; Secretary M. L. Corey, Argos, Ind.; S. R. Miles, Mason City, Iowa; W. P. Bogardus, Mount Vernon, Ohio; A. T. Stebbins, Rochester, Minn., and Sharon E. Jones, Richmond, Ind. W. S. Richardson, chairman of the Legislative Committee of the National Association of Retail Druggists, accompanied the delegation.

The President Will Take No Action Without Full Investigation.

The purpose of the delegation in visiting Washington at this time was to discuss parcel post legislation with the authorities here in advance of the preparation of the President's message to Congress and of the Postmaster-General's annual report, the work upon which is usually begun immediately after the close of the fiscal year on June 30. The members of the committee were introduced to the President by Senator Dolliver of Iowa, and were accompanied by Representatives Tawney of Minnesota, chairman of the House Committee on Appropriations; Haugen of Wisconsin and others. Mr. Miles acted as spokesman and urged the President not to recommend the enactment of a parcel post law, either in the form of a general statute or limited to the rural routes. He dwelt at some length upon the fact that there was no real demand for such an institution in this country, while the opposition was strong and based upon sound business considerations. The President replied that he had not given the subject any study and that he would certainly take no action without the fullest investigation. He added, with a smile, that he thought there were enough subjects in the national Republican platform to

engage his attention when preparing his next annual message without taking up parcel post.

Objections of Retail Merchants to Be Put in Writing.

The delegation then called upon Postmaster-General Hitchcock, to whom they were introduced by Representative Tawney. The meeting with the head of the Post Office Department partook of the character of a general conference, and was participated in by all the members of the delegation and by Messrs. Tawney and Haugen. Mr. Hitchcock was disposed to be noncommittal, but said that he did not favor anything that would increase the existing postal deficit. Before making any recommendation as to a parcel post he would certainly investigate the matter and for this purpose desired all possible information. In conclusion, he requested the committee to present their case in writing as fully as possible, that the objections of the retailers may be thoroughly understood by the Department officials.

Calls on Speaker Cannon and Other Congressional Leaders.

Representative Tawney then piloted the delegation to the sanctum of Speaker Joseph G. Cannon, who presides over the House of Representatives. Mr. Cannon's opposition to parcel post schemes of all kinds is well known and his greeting of the delegation was cordial and evidently sincere. He spoke very sympathetically of the difficulties that beset the path of the average retail merchant and assured them of his willingness to do everything in his power to assist them.

The committee subsequently called upon Senators Culom of Illinois, Shively and Beveridge of Indiana, and Representatives Crumpacker and Barnard of Indiana and others. Senator Beveridge, who last winter appeared in the role of an ardent champion of the Postmaster-General's rural parcel post scheme, is far less enthusiastic on the subject since hearing from the retail merchants in Indiana, and is not likely to lead the fight for this particular type of postal "reform" when Congress reconvenes next December.

National Hardware Manufacturers' Agents' Association.

A meeting of Hardware manufacturers' agents, held in Pittsburgh on the 9th inst., it was decided to form a National Hardware Manufacturers' Agents' Association. A temporary organization was effected by the election of the following officers:

PRESIDENT, Daniel Kemp Stucki, Buffalo, N. Y.

VICE-PRESIDENT FOR THE MIDDLE WEST, John A. Gregg, Burlington, Iowa.

VICE-PRESIDENT FOR THE WEST, J. T. Roundtree, Los Angeles, Cal.

VICE-PRESIDENT FOR THE EAST, John K. Wilson, Baltimore, Md.

VICE-PRESIDENT FOR THE SOUTH, W. W. Crandall, Nashville, Tenn.

SECRETARY AND TREASURER, Fred. M. Huggins, Chattanooga, Tenn.

It is expected thoroughly to perfect the organization at the annual meeting of the National Hardware Association at Atlantic City in October next.

The new organization starts out with all the principal Hardware manufacturers' agents who were present at the Pittsburgh meeting of the American Hardware Manufacturers' and Southern Hardware Jobbers' associations, comprising a liberal percentage of the total number doing business in the United States.

THE name of Benjamin P. Forbes, Beekman Building, Cleveland, Ohio, manufacturer of Pipe Shears, Pillow Sham Holders, Tack Pullers, Can Openers, Glasbrite, a material for cleaning windows; Fruit Jar Holders and Fruit Jar Wrenches, was inadvertently omitted from The Iron Age Directory for 1909, just issued, under the heading "Wrenches, Fruit Jar," where it should have appeared. The trade will please note the omission.

MAKING GOOD IN BUSINESS

HINTS AND SUGGESTIONS FROM MANY SOURCES

Rest.

Rest is not quitting
The busy career;
Rest is the fitting
Of self to its sphere.

'Tis loving and serving
The highest and best;
'Tis onward, unswerving,
And that is true rest.

Life in the Hardware Store.

To the Editor: Here are a couple of actual happenings during the past two weeks that perhaps you can write up for your "Making Good in Business" columns, although they are of the "like we heard before" order.

In taking down an empty barrel from the top of tank (we tank our Oil) it fell against the faucet, which broke. To stop the flow of Oil I jumped into the mess and put my hand over the hole and after some fussing succeeded in plugging it. Right in the midst of the excitement a man comes in and insists on talking life insurance to me.

How a Traveler Landed an Order. I got mad and told him to get out. Of course, now it's all over, it's a joke. But how absurd talking life insurance to a man when he has just spoiled his clothes, shoes, &c., lost 8 gal. of Oil and half flooded his store! The insurance solicitor had no more than got out of the door when in comes a Varnish drumer. He says, "tough luck," rolls up his trousers and helps the clerks make sawdust dams and shovel up the mess. He did not mention an order, but came back in the afternoon and, of course, got one. The moral is easily drawn.

In your columns a week or two ago you told of a boy who got a job because of taking a Hoe with him when he was passing out of a store. The other day the back door of our store was open and the mess was lying around that comes from opening boxes all the morning. A Broom stood against the counter just inside the door. I was at a desk nearby; no one else near. A boy comes along, stops and looks in. Then steps inside, takes the Broom, sweeps the mess all up and does not say a word until he asks me for a Dustpan and the ash barrel. He is working to-day in the store.

NEW ENGLAND.

Learn to Ask Questions.

Here is one of the most valuable things you will ever learn: You can save yourself years of effort by utilizing the knowledge and experience of others. What it takes a man ten years to learn may take him only a minute to tell. If you ask him a question that will draw out his convictions, you can get the same thought you would probably reach if you went over the same ground he did. You can, as it were, begin where he left off.—W. P. Warren.

Order.

What comfort, what strength, what economy there is in order—material order, intellectual order, moral order. To know where one is going and what one wishes—that is order; to keep one's word and one's engagement—again order; to have everything ready under one's hand, to be

able to dispose of all one's forces, and to have all one's means of whatever kind under command—still order; to discipline one's habits, one's efforts, one's wishes; to organize one's life, to distribute one's time, to take the measure of one's duties and make one's rights respected; to employ one's capital and resources, one's talent and one's chances profitably—all this belongs to and is included in the word order. Order means light and peace, inward liberty and free command over one's self; order is power—*Henri Frederic Amiel*.

Perseverance.

Success in life mainly depends upon perseverance. When a man has determined to follow a certain line of business he must at the same time resolve to persevere until success crowns his efforts. He must never be cast down by the difficulties which may beset his path—for whoever conquers difficulty conquers a weakness of his own frail nature likewise. How many men have commenced business under the most favorable auspices, and yet when a cloud has momentarily over-shadowed their path have lost all command over themselves and fled before the temporary gloom, instead of persevering until the cloud has been dispersed, and sunshine once more smiled upon their efforts. Others, more fickle, have thought their business, in some minor departments, unworthy of their perseverance and energy, and forgetting the golden maxim that "whatever is worth doing is worth doing well" have ceased to persevere in small matters, until sloth has entered deeply into their minds, and their whole business is greatly neglected. We are too apt to attribute success in business to good fortune instead of great perseverance. This is a great evil and should be eschewed, as it leads many

A Great Mistake. to suppose that Dame Fortune will do that for them which they are unwilling to do for themselves. The history of every great success in business is the history of great perseverance. By perseverance the mind is strengthened and invigorated, and the difficulty that once seemed so formidable is a second time surmounted with ease and confidence.

Energy and great perseverance are never thrown away on a good cause or left unrewarded, and to every man of business perseverance should be his motto, and then he may look with confidence to fortune as his reward.—*Freeman Hunt*.

Death of Gustav Amsinck.

GUSTAV AMSINCK, senior member of the firm of G. G. Amsinck & Co., a leading house in the South American trade, died June 8 at his residence in New York, aged 72 years. He was born in Hamburg, Germany, coming to the United States in 1857. In 1860 he became a member of the commission and banking house of L. E. Amsinck & Co., and had been head of G. Amsinck & Co. for 35 years. Mr. Amsinck was a trustee of the Atlantic Mutual Insurance Company and a trustee and director in several other insurance companies, a director of the Bank of New York and a member of the Coffee and Produce Exchanges. He was also a member of the Union Club, Deutsche Verein, Downtown Association and Baltusrol Golf Club.

THE SMITH & HEMENWAY COMPANY, 108-110 Duane street, New York, announces that henceforth it will be in a position to accept orders for Nippers, Pliers and Staple Pullers, as enumerated in the fifth edition of its Green Book catalogue, together with new tools, which include Burner, Gas, Bell Hangers, Duck Bill, Chain Nose, Snipe Nose, Insulated Side Cutters (three styles), Slip Joint Pliers (6 to 10 in. sizes) and Combination Wire Clamps. These goods will be marketed under the brand Red Devil, long used by the company.

THE KELLY MFG. COMPANY, Waterloo, Iowa, has made arrangements with the I-XL Furniture Company, Goshen, Ind., manufacturer of I-XL Kitchen Cabinets and Fireless Cookers, to carry a full line of its goods in the company's new warehouse at Waterloo.

THE CONVENTIONS AT PITTSBURGH.

American Hardware Manufacturers' Association. Southern Hardware Jobbers' Association.

The conventions of the American Hardware Manufacturers' Association and the Southern Hardware Jobbers' Association, held simultaneously and in part jointly, at Hotel Schenley, Pittsburgh, June 9-11, combined the profit which attends the gatherings of men of the same or similar interests with the enjoyment that accompanies the splendid hospitality of the people of Pittsburgh. The attendance was large, and the Schenley and Fort Pitt hotels, respectively, the headquarters of the jobbers and manufacturers, were taxed to their utmost capacity.

The proceedings of both bodies were as usual largely of a private nature, but several of the addresses were made public, including those by the manufacturers, who were down to participate in a joint session with the jobbers, to discuss matters which perhaps need more exact adjustment of system. Unfortunately, the jobbers did not conclude their last session in time to take part in the discussion.

President W. L. Sanford and the other officers of the Jobbers' Association were given a unanimous re-election, a much deserved compliment, as the association has progressed rapidly in the year, until it includes practically all of the jobbing trade of the South. Atlantic City was chosen as the convention place for 1910.

As this was the semi-annual meeting of the manufacturers less of routine business was transacted, but the

the Southern Hardware Jobbers' Association, was an eloquent story of the struggle for the general development of the South during the last 40 years, and the important share which the Hardware trade had contributed toward the fulfillment of a mighty effort. Mr. Sanford said it was true that other sections of the Republic were on a parity with the South and that some surpass her in material wealth and commercial prestige, but, he remarked, success is not to be measured by the point attained but by the difficulties overcome in its attainment. These other sections had had thrown around them unnatural and political conditions that were denied to the South, and this fact greatly emphasized the remarkable strides which she has made in the race for commercial and industrial recognition. He admitted that these vast improvements and varied enterprises had been



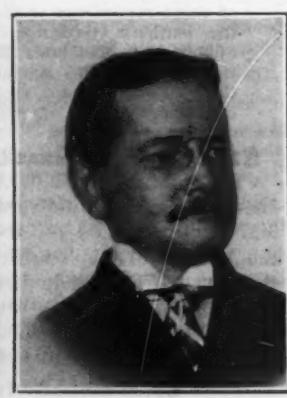
W. L. SANFORD.



H. R. MILLER.



JOHN DONNAN



F. D. MITCHELL.

resolutions emphasized important principles, notably the declining of contributions toward the expense of jobbers' catalogues, the condemnation of private brands and of the practice of paying manufacturers' invoices by local check.

A spirit of optimism in the general business situation was apparent on all sides, in a gathering of astute men from nearly every part of the country, a fact which added not a little to the enjoyment of an occasion rich in pleasant features provided by the generous and thoughtful hosts.

Pittsburgh's Welcome.

The opening session, Wednesday, was one of welcome and congratulation. The associations met together and with them were their guests, including the ladies. President W. L. Sanford of the jobbers' body presided, and Rev. J. H. McIlraine invoked divine blessing, after which Mayor William A. Magee welcomed the visitors on behalf of the city of Pittsburgh, President Sanford responding eloquently. President Robert Garland of the American Hardware Manufacturers' Association, who is head of the Garland Nut & Rivet Company, extended a greeting to the associations and their friends as a Pittsburgh manufacturer. T. James Fernley, secretary of the National Hardware Association, spoke of the relationships existing between the association and the manufacturers, and Charles H. Williams, Streator, Ill., president of the National Retail Hardware Association, extended the greetings of that organization. President Garland's welcoming address is given on another page.

Mr. Sanford's Presidential Address.

The annual address of W. L. Sanford, president of

largely financed with Northern capital, but at the same time they were made upon the initiative and with the encouragement and co-operation of Southern men, reflecting in the highest degree their energy and sagacity.

Manufacturers' Brands Versus Private Brands.

This was one of the most important questions considered by the manufacturers. Notwithstanding the efforts they have made to discourage the making of special brands for the merchants there is still so much of this done that the manufacturers feel the necessity of encouraging in every reasonable manner the sale of their own brands. At the executive session of their association on Friday morning the following resolutions reported by the Resolutions Committee, consisting of C. W. Asbury, C. A. Earle, W. W. Birge, Edward Ingalls and E. Bertram Pike, were unanimously adopted:

Whereas, The members of this association are endeavoring to stop the growth of special brand business and influence jobbers and retailers to more largely carry and push regular factory brands of goods; and

Whereas, Our members are among the largest consumers of many lines of hardware; be it

Resolved, That the members of this association in the purchase of their own supplies accept only goods bearing a regular factory brand, thus encouraging by their own action those dealers who see fit to carry such factory brands of goods; be it further

Resolved, That a copy of these resolutions be forwarded to the National Association of Manufacturers of the United States and the American Supply and Machinery Manufacturers' Association for their consideration.

At the open session which followed a very strong and suggestive paper was presented by J. C. Birge in discussion of this question, as stated in the programme: "Is

it treating the manufacturer fairly and honestly to ask him to sell his product under private brands and then demand that he do not sell goods of his own brand to catalogue houses or to retail houses?" The paper was an able discussion of the general subject and brought out some new considerations in regard especially to the marketing of manufacturers' goods. It was the expressed opinion of the association that it was desirable that the paper be published as a clear statement of the manufacturers' position on this important subject. It is given in full in the following columns.

Remittances to Manufacturers in Local Checks.

It is well known that many retail merchants are in the habit of remitting checks on their local banks to the parties from whom they purchase goods, but it developed in the discussion of this general subject by the Manufacturers' Association that this practice, to some extent and possibly to an increasing extent, prevails with the jobbing houses. In view of this condition of things the following resolutions were adopted by the manufacturers:

Whereas, There appears to be a growing practice among our customers to pay manufacturers' invoices by local checks, upon which there is usually a charge made by the banks for collection; and

Whereas, Such charges directly reduce the agreed price at which the goods were sold, and thus become an unfair and unnecessary burden upon the seller; be it

Resolved, That our members be requested to inform their customers of this condition and to ask that remittances be made in funds at full par with the manufacturer at his established location; and be it further

Resolved, That the secretary be requested to send a copy of these resolutions to the National Hardware Association, the Southern Hardware Jobbers' Association, the Southern Supply and Machinery Dealers' Association and the National Supply and Machinery Dealers' Association, asking them to advise their respective membership to remit in accordance with the agreed terms of sale without deduction of costs of collection.

Manufacturers' Branch Houses and the Jobbers.

The address of H. C. Atkins, of E. C. Atkins & Co., Indianapolis, Ind., delivered at the open session of the Manufacturers, had for its subject: "What Should Be the Attitude of the Jobbers to Manufacturers Who Establish Branch Houses in Competition with the Jobbers?" The paper, which is given in full on another page, is an interesting exposition of a subject long regarded as affording an opportunity for complications.

Local Manufacturers' Associations.

John C. Schmidt, president of the Standard Chain Company, in a paper read to the manufacturers on "The Benefits of Local Manufacturers' Associations," presented valuable information for manufacturers and particularly for those whose works are in cities of moderate size and in the larger towns. In York, Pa., Mr. Schmidt's home town, the results have been definite financial returns, as well as the indirect rewards of co-operation and harmony in matters affecting mutual interests. There is a growing recognition of the importance of local associations, both of manufacturers and merchants, and Mr. Schmidt's able paper, which is given in the following columns, will be of special interest and practical and suggestive.

The Expense of Jobbers' Catalogues.

While a good deal has been done in the way of discouraging the solicitation by jobbers of contributions from manufacturers to cover the expense of representing their goods in jobbers' catalogues there is obviously a good deal more of this practice than is pleasing to the manufacturers. After a careful consideration of the subject and the bringing out of the facts in regard to recent requests from jobbing houses, the following resolutions were adopted by the manufacturers:

Whereas, This association has repeatedly advised its members to discontinue the practice of contributing toward the expense of publishing jobbers' catalogues; and

Whereas, It is now reported to our executive office that there is a renewal of requests from some jobbers to our members for such contributions, directly or indirectly; and

Whereas, The expense of publishing a jobber's catalogue appears to us to be directly chargeable among the items usually considered as expense incidental to the conduct of a jobbing business, precisely the same as the expense of publishing a manufacturer's catalogue is so chargeable in his business; and

Whereas, a resolution bearing hereon was sent to the

National Hardware Association, inviting an expression of the sentiments of its members, in response to which no definite action was taken; be it therefore

Resolved, That we again recommend to our members that all such requests for catalogue contributions be declined; and be it further

Resolved, That a copy of this resolution be forwarded to the officials of the Southern Hardware Jobbers' Association, the National Hardware Association, the Southern Supply and Machinery Dealers' Association and the National Supply and Machinery Dealers' Association, with the request that some definite action be taken thereon by their respective members in convention, in order that the members of this association may be informed as to the opinion of jobbers generally in respect thereto; and be it further

Resolved, That all of the members of the American Hardware Manufacturers' Association be requested to promptly advise the secretary of this association of all requests received by them for contributions toward the expense of publishing jobbers' catalogues, with detailed information in connection therewith, and that the secretary be requested to report to the Executive Committee a tabulation of such reports as are received by him, for such further action as the Executive Committee may determine.

In response to the presentation of this resolution to the Southern Jobbers' Association, the following action was taken by that body:

Resolved, That it is the sense of this body that the manufacturers be permitted to refuse contributions from any jobber who may apply to them for aid in printing their catalogues.

In Memoriam.

The Jobbers' Memorial Committee reported the loss by death of two valued members: T. G. Ewing, Ewing Hardware Company, Gadsden, Ala., and H. W. Cortes, Bering-Cortes Hardware Company, Houston, Texas. Suitable expression was made of the regret of the association at the loss of their associates, and notice was likewise taken of the death of S. P. Bispham, Russell & Erwin Mfg. Company, New York; Charles H. Weir, Weir & Wilson, Baltimore; Robert D. Carter, Pittsburgh Steel Company, and Percy Cawthorn, W. W. Crandall & Co., Nashville, Tenn., who, while not members, had assisted in making the annual meetings pleasant and successful.

A special committee of the manufacturers, consisting of C. W. Asbury and W. W. Birge, presented appropriate resolutions on the death of Alvin Jackson, president of the Miller Lock Company, and a valued member of the association, which occurred recently at Shanghai, China, while he was making a tour of the world.

Election of Officers.

The Southern Hardware Jobbers' Association unanimously elected the old board of officers, as follows:

PRESIDENT, W. L. Sanford, Roberts, Sanford & Taylor Company, Sherman, Texas.

FIRST VICE-PRESIDENT, H. R. Miller, Barnes & Miller Hardware Company, Memphis, Tenn.

SECOND VICE-PRESIDENT, S. C. Dinkins, Dinkins & Davidson Hardware Company, Atlanta, Ga.

John Donnan, W. S. Donnan Hardware Company, Richmond, Va., was again chosen secretary-treasurer. President Sanford announced the appointment of the Executive Committee, which consists of W. A. Parker, Beck & Gregg Hardware Company, Atlanta, Ga.; F. A. Heitmann, F. W. Heitmann Company, Houston, Texas; Charles H. Ireland, Odell Hardware Company, Greensboro, N. C., and J. D. Moore, Moore-Handley Hardware Company, Birmingham, Ala.

Atlantic City for 1910.

It was voted by the two associations that the 1910 conventions shall be held at Atlantic City, N. J., during the second week of June. The Marlborough-Blenheim will doubtless be the scene of the gathering.

The Joint Discussion Side-Tracked.

The programmes of both associations called for a joint session on Thursday afternoon, when several topics of engrossing interest were slated for discussion. Much to the disappointment of many this joint session was not held and the subjects did not receive the full and formal consideration intended. On account of pressure of work before the Southern Association the meeting was at their request postponed from Thursday afternoon to Friday noon, but when that time arrived the same reasons that interfered with the earlier date still prevailed. The subjects related to branch houses established by manu-

facturers, some phases of syndicate buying, the quoting of jobbers' prices and methods employed by manufacturers in marketing goods of their own brand as against private brands made for the jobbers, and were of such importance that the Manufacturers' Association on Friday after the executive session threw its doors open to the press, the jobbers and any who desired to attend. At this session most of the questions announced in the programme were discussed, as noted more in detail elsewhere, the important papers being given in the following columns.

The Banquet.

On Thursday evening a banquet was tendered by the Pittsburgh members of the American Hardware Manufacturers' Association to the Southern Hardware Jobbers at which there was a large attendance, not only of the merchants connected with that organization, but of manufacturers, representative Pittsburghers and invited guests. The occasion was exceptionally brilliant and successful, in the pleasure of which over 500 gentlemen participated. The banquet hall of the Hotel Schenley was handsomely decorated with a profusion of flowers, and music and the singing of familiar songs contributed to the enjoyment of the evening.

After an excellent dinner with extended menu President Garland in a brief but happy address in which he referred to the importance of Pennsylvania in the national councils and legislation, as represented by Secretary Knox, Senator Oliver and Congressman Dalzell, asked Hon. James Francis Burke, to whom he paid a high tribute, to act as toastmaster, a position which he filled in his own brilliant style. The speakers of the evening were Hon. John Barrett, whose topic was "America's Greatest Foreign Commercial Opportunity"; Hon. J. Sloat Fassett, whose text was, "A Merchant Marine," and Hon. Joseph Buffington, who responded to the sentiment, "A Good Natured Understudy."

Importance of Cultivating South American Trade.

Mr. Barrett's address was a most forcible plea for the cultivation of trade relations with the South American republics. He gave many impressive facts and figures with striking illustrations bearing on the extent and wealth of these countries and their rapidly increasing commercial importance. Without depreciating the opportunities which are presented for trade with Europe and the Orient Mr. Barrett dwelt on the imperative obligation now resting on the United States to secure the trade of these Southern countries, and not to let it drift into the hands of the nations across the sea. His argument made a deep impression and called out frequent expressions of approval.

A Merchant Marine.

The next speaker was Hon. J. Sloat Fassett of Elmira, N. Y., whose subject logically followed that of the preceding address. Mr. Fassett gave a melancholy picture of the disappearance of America's shipping from the high seas and our dependence on foreign nations to carry our goods, a service for which we pay them nearly \$200,000,000 a year. We are digging the Panama Canal at a cost of hundreds of millions, said the speaker, and when it is done we have not a single steamship to go through it, and are spending millions of dollars on harbors and rivers, digging 40 to 50 ft. channels, and have not a single vessel carrying the American flag which needs a 40-ft. channel. Mr. Fassett argued that the principle of protection which is applied in so many directions be applied also to the establishment of a merchant marine. His address was listened to with closest attention and most heartily applauded.

Judge Buffington's Address.

The closing address was made by Hon. Joseph Buffington, United States Circuit Judge, who, after some introductory remarks in a light and facetious vein, made an eloquent plea for loyalty to the highest ideals, in individual, commercial and civic life, thus making a most appropriate culmination to the suggestive line of thought which had been followed so happily and forcibly during the evening.

Souvenirs.

Among the souvenirs distributed by the manufacturers were the following: Lufkin Rule Company, Saginaw, Mich., Steel Tape Measure; McCaffrey File Company, Philadelphia, Pocket File; Columbian Enameling & Stamping Company, Terre Haute, Ind., Card Case; Youngstown Sheet & Tube Company, Youngstown, Ohio, Wire Gauge; Pike Mfg. Company, Pike, N. H., Sharpening Set, which has been got up with a view to educating the trade in the different qualities of Oil Stoves; American Axe & Tool Company, Glassport, Pa., Paper Weight, consisting of a miniature Axe head. This company had an exhibit of its products at Hotel Schenley, in which was included the processes of manufacture.

naw, Mich., Steel Tape Measure; McCaffrey File Company, Philadelphia, Pocket File; Columbian Enameling & Stamping Company, Terre Haute, Ind., Card Case; Youngstown Sheet & Tube Company, Youngstown, Ohio, Wire Gauge; Pike Mfg. Company, Pike, N. H., Sharpening Set, which has been got up with a view to educating the trade in the different qualities of Oil Stoves; American Axe & Tool Company, Glassport, Pa., Paper Weight, consisting of a miniature Axe head. This company had an exhibit of its products at Hotel Schenley, in which was included the processes of manufacture.

THE ENTERTAINMENT FEATURES.

The reputation of Pittsburgh manufacturers for liberality in entertaining their friends was fully sustained in the preparations made and so well carried out looking to the social enjoyment of those in attendance at the convention. Several months ago a general entertainment and reception committee, composed of the heads of practically all the leading manufacturing interests in Pittsburgh and nearby districts, was appointed, of which Charles S. Hubbard of the Ames Tool & Shovel Company, Beaver Falls, Pa., was chairman, Charles J. Graham of the Graham Nut Company, secretary, and W. C. Reitz of the Pittsburgh Steel Company, treasurer. Nearly every manufacturing concern of any moment had one or more representatives on this committee, and all were liberal subscribers to the large fund raised for the entertainment of the visitors.

The principal events arranged for were a smoker and concert on the lawn of the Hotel Schenley on Wednesday evening, trips to some of the leading manufacturing plants on Thursday morning, a banquet for the men and a bridge party for the ladies on Thursday evening, a tea and band concert at the Country Club on Friday afternoon and a dance on Friday evening. In addition to this, numerous side trips to points of interest were arranged, not a few of the visitors being escorted by Pittsburgh friends to the scene of old Fort Duquesne, where the block house still stands, and around which some stirring events occurred during the Revolutionary War. Trips were also made by many of the ladies and some of the men to the large plant of the H. J. Heinz Company on the N. S., Pittsburgh.

The first of these events, the smoker on Wednesday evening, was a highly successful affair, and was largely attended. The Fourteenth Regiment band of Pittsburgh rendered a very enjoyable musical programme. The band concert lasted until about 9:30, after which an excellent vaudeville entertainment was given. Liquid refreshments and cigars were served, and the men were presented with beer steins on each of which was printed the inscription, "Please take me home," and this request, needless to say, was faithfully carried out, and the steins will be preserved by their owners as souvenirs of a very delightful occasion.

The trips to the manufacturing plants originally set for 1:30 p.m. Thursday were at first called off in the morning on account of inclement weather, but toward noon the rain stopped and the sun commenced to shine. Parties were made up to visit different manufacturing plants, some going in private conveyances and others in special trolley cars and taxicabs provided by the committee for the occasion. Some of the visitors elected to attend the ball game between the Pittsburgh and Philadelphia teams of the National League. The principal manufacturing plants visited were the Homestead Steel Works of the Carnegie Steel Company, the Rankin, Pa., works of the American Steel and Wire Company, the open hearth plant, rod and wire mills of the Pittsburgh Steel Company at Monessen, Pa., the McKeesport, Pa., works of the National Tube Company, the American Iron & Steel Works of the Jones & Laughlin Steel Company, the works of the Westinghouse Electric & Mfg. Co. at East Pittsburgh, and some smaller plants.

American Steel & Wire Company.

The trip to the Rankin, Pa., works of the American Steel & Wire Company was made in two special trolley

cars and a number of taxicabs, the party numbering 67, in charge of W. L. Hirsch, general sales agent of the company; S. L. Neely and L. H. Carlisle. Upon reaching the plant, the party was divided into squads in charge of competent guides and a thorough inspection was made of the rod mills, wire and wire nail departments. The Rankin plant is one of the most important controlled by the American Steel & Wire Company, having an annual capacity of 110,000 tons of wire rods, 115,000 tons of wire and 1,120,000 kegs of wire nails. Most of the party also visited the Schoenberger works of the American Steel & Wire Company in the Pittsburgh district, where the famous Juniata horse shoes are manufactured. Pony silver plated horse shoes were given to the guests as a souvenir of their visit. While at Rankin the party embraced the opportunity to visit the Rankin works of the Standard Chain Company, where the process of making chains of all kinds was witnessed.

The Pittsburgh Steel Company

Took a large number of visitors in a special car to Monessen, Pa., on Thursday morning, to inspect its open hearth steel works, rod, wire, wire nail and fencing plants. The party was in charge of E. H. Steytler, assistant general sales agent of the company, and George Nash, general manager of the plant. The company has recently completed the building of a large open hearth steel plant containing eight 60-gross ton basic open hearth furnaces, the plant being one of the most modern in the country, with a daily capacity of 1200 tons of open hearth billets, 6000 kegs of Wire Nails, 30,000 net tons of Barb Wire and about 350 miles of electrically welded Pittsburgh Perfect Fencing. The Fencing department seemed to interest the visitors very much, most of their time being spent watching the operation of the machines. The process by which this Fencing is electrically welded was also of special interest. After inspecting the plant, the visitors were entertained at luncheon in the dining room maintained by the company for its officials and employees. Upon their return to Pittsburgh, they expressed themselves as highly pleased and benefited by their trip to this important plant.

National Tube Company.

The trip to the McKeesport Works of the National Tube Company was in charge of J. W. Downer, assistant general manager of sales; S. H. White and John Duncan. At this plant Pipe in all sizes, from the smallest up to 32-in. in diameter, is made from the ore up, the National Tube Company having its own ore properties, blast furnaces, steel works and rolling mills. The party first visited the four blast furnaces, afterward the modern Bessemer steel plant and then went through the Pipe mills, where the process of making Pipe of all kinds and sizes were thoroughly explained by guides. This trip was thoroughly enjoyed by the guests, some of whom had never seen before the process of making Pipe.

Jones & Laughlin Steel Company.

The trip to the American Iron & Steel Works of the Jones & Laughlin Steel Company on the South Side, Pittsburgh, was in charge of E. D. Batchelor, Frank S. Scoum, H. G. Semple and E. A. France, from the various sales departments. The company has recently completed the building of four more Talbot open hearth furnaces, making nine in all, all of which are in operation, making upward of 2500 tons of steel per day. The visitors were conducted through the steel works, the plate and structural mills, and were thoroughly impressed with the magnitude of this plant, which is one of the largest in the Pittsburgh district. The concern makes practically everything in finished steel products from a $\frac{1}{4}$ -in. round up to the largest sizes of beams and channels. It has a yearly capacity for making about 1,200,000 tons of steel billets and 1,000,000 tons of finished material.

Homestead Steel Works.

A large number of the delegates embraced the opportunity of visiting the famous Homestead Steel Works of the Carnegie Steel Company at Homestead, and witnessed the manufacture of the largest sized plates, structural shapes, railroad ties and other heavy products in steel. Trained guides were furnished by the company to con-

duct the visitors through this immense plant, which is the largest single works in the Pittsburgh district, its products consisting of blooms, billets, slabs, structural shapes, plates of all kinds, railroad ties, armor plate and steel castings. The Homestead works has an annual capacity of 500,000 tons of Bessemer steel ingots, over 2,000,000 tons of basic open hearth steel ingots, 1,750,000 tons of blooms, billets and slabs, from which are made annually 450,000 tons of structural shapes; nearly 1,000,000 tons of plates, besides other products. The visitors were thoroughly impressed with the magnitude of this works, and were only sorry that their brief time would not allow a more thorough inspection.

Other Side Trips

were made to the works of the Westinghouse Electric & Mfg. Company and the Westinghouse Machine Company at East Pittsburgh, also to the works of the Pittsburgh Plate Glass Company, where the process of making plate glass was witnessed. On Thursday afternoon many of the ladies in attendance visited the works of the H. J. Heinz Company on the N. S., Pittsburgh, the home of the famous "57" products. They were escorted to this plant by some of the members of the Ladies' Reception Committee and thoroughly enjoyed the trip.

Garden Party and Dance.

On Friday from 2 to 5 p.m. a tea garden party and band concert were given on the spacious grounds of the Pittsburgh Country Club, which was very largely attended by both men and women. The visitors were taken from the Hotel Schenley to the club in automobiles, and their every comfort and convenience was carefully looked after by the members of the Ladies' Reception Committee.

The closing event of the entertainment was a dance given at the Hotel Schenley on Friday evening, the grand march taking place at 9 o'clock. The officers of the two associations were in the receiving line and assisted materially in adding to the enjoyment of the visitors.

Social Side of Convention Will Long Be Remembered.

The Pittsburgh Reception and Entertainment Committee, and the Pittsburgh Ladies' Reception Committee, which had charge of the social entertainment of the ladies, are entitled to much credit for the splendid manner in which the visitors were entertained. Nothing was left undone that would add to the comfort, convenience and pleasure of the members and their ladies, and the social part of the Pittsburgh convention will long be remembered as highly successful from every point of view and reflecting credit on all who had to do in any way with the care and entertainment of the visitors. Special reference should be made to Charles S. Hubbard, chairman; Charles J. Graham, secretary, and W. C. Reitz, treasurer of the General Committee, who worked unceasingly for the social success of the conventions.

Visit to Youngstown.

Upon invitations from officials of the Youngstown Sheet & Tube Company, Youngstown, Ohio, 68 miles from Pittsburgh, a large number of the visitors boarded a special car on the 9:15 train on the Pittsburgh & Lake Erie Railroad on Saturday morning and were taken to the plant. The party was in direct charge of E. S. Rooney, Pittsburgh sales agent of the company; George E. Day, general manager of sales; W. E. Manning, assistant general manager of sales, and H. B. McMaster, manager of sales for the Wire and Nail departments. Upon the arrival at Youngstown, the party were joined by J. A. Campbell, president, and Richard Garlick, treasurer of the company. A thorough inspection was made of the works, which embrace two blast furnaces, with a capacity of 1000 tons of pig iron per day, a Bessemer steel works, with an annual capacity of 600,000 tons of ingots, nearly all of this steel being used in the manufacture of sheet and tin Bars, Skelp, Hoops, Universal Plates, Muck and Scrap Bars, Black and Galvanized Sheets and Pipe, the company having an annual capacity of over 200,000 tons of Pipe, in sizes ranging from $\frac{1}{2}$ to 12 in. in diameter. The concern is now building another

Pipe mill, which will make pipe up to 24 in. outside diameter and is also building additional Sheet mills. It owns large ore properties in the Mesaba Range and also coal lands in Greene County, Pa. Some months ago the company acquired by purchase the plant of the Morgan Spring Company at Struthers, near Youngstown, and is also a large manufacturer of Wire Rods, Wire Nails, Barb and Fence Wire. It has steadily increased its capacity in practically all lines. In the evening the company tendered a dinner to its guests at the Youngstown Club, which was very greatly enjoyed.

Welcome to Pittsburgh.

An Eloquent Salutation from the President of the American Hardware Manufacturers' Association.

BY ROBERT GARLAND OF THE GARLAND NUT & RIVET COMPANY, PITTSBURGH, PA.

As a Pittsburgher I thank the Mayor of our city for the cordiality of his welcome. We are fortunate in having a very popular Mayor and one who will do things for the city.

For many years we have had an excrescence known locally as "the hump," which detracts considerably from the beauty of our city and the natural extension and expansion of the city proper. The Mayor has promised to take off this hump during his administration, and I venture to say that if he succeeds in doing so, and I have no doubt that he will, his action in that regard will be a lasting monument to him.

I am proud to have the honor on behalf of our Manufacturers' Association to welcome here to-day our good Hardware friends from

the Southland. Some of you have visited us in the past, but never before have we had here so large a gathering of Southern Hardwaremen at one time and under one roof as we have to-day. We manufacturers

A Great Gathering. have enjoyed your hospitality a number of times in Southern cities, and we are going to do our best, in our cold Northern way, to make your stay here a pleasant one, and this does not mean you men only, but also your good ladies, your wives and sisters and daughters, whom you have brought with you. I am also glad to note the presence of a large number of our own members and their ladies.

And speaking for our Pittsburgh membership of the Hardware Manufacturers' Association, I wish to assure you all of our heartiest welcome to the old city. Ours is a historic city. The "Father of his country" visited us in times past, and in this district were fought great battles

which had to do with the early history of the nation. We have also the great distinction of having had in our district here the Whiskey Insurrection, when the Scotch-Irish settlers

Historic Pittsburgh. of the early days rebelled against paying taxes. Those Scotch-Irish pioneers were the forbears of a great many of our leading citizens of to-day, and the anti-free trade principles were so strongly impressed upon them by the Government, under the stern rule and strict discipline of that greatest of Virginians, who hailed from John Donnan's State, when they were forced to retire peacefully to their homes and lay down their arms, that Pittsburgh has been rather strong against free-trade ever since.

While in the past historically, we have been for some years commercially great. Iron was once king here, but to-day his greater son, steel, reigns in his stead. It is unnecessary, however, to enlarge upon this subject. You

Commercial Greatness. men in the Hardware business know where you come to trade, and "f.o.b. Pittsburgh," as a selling basis for iron and steel products, which term may or may not be familiar to the ladies, is known and recognized more than any other trading phrase all over this great country.

Less than two months ago in the city of Houston, Texas, while a guest of the Texas State Jobbers, some of our Hardware people went up the Bayou to visit the battlefield of San Jacinto, where Santa Anna surrendered to that great Southerner, Sam Houston, thus giving to the nation the

great State of Texas, with its wonderful future possibilities. After listening to the orator of the day, I was called upon to make a few remarks and was introduced as being from the "Frozen North," and as being "one of those manufacturers from the North who take all our money." Now we want to show our good friends from the South while here that we are not frozen and the only thing that would suggest anything of the kind that we can give you while here will be your own mint julep, well frosted. And so far as taking your money is concerned, we certainly took very little during the past year or so, but we tell you frankly we hope to take more in the near future. The more we take from you the happier you will be, for such things sound like good times and we all believe they are coming. And I know that the ladies also are hoping for better times and they are just as much interested as we are.

Now just one more word and I have done. You who have not visited here before should not fail to see the chain of beautiful buildings surrounding this hotel; the buildings of the University of Pittsburgh, the Schools of Technology, Memorial Building, the Margaret Morrison Carnegie Training School and the Carnegie Institute. No building in the world can show more under one roof in the line

Notable Buildings. of literature and art than can the Carnegie Institute. We have one of the very best libraries in the world, a fine art gallery, a hall of sculpture and a museum. In this museum you may gaze on the skeleton of an animal which will throw into the shade anything you ever saw. This mounted skeleton is the greatest in the world of anything of its kind. In general appearance something resembling a monster lizard, it is 84 ft. long, 17 ft. high and 6 ft. across the back, and it lived just 4,000,000 years ago. A cast or reproduction of this animal, called "Diplodocus," has been presented by Mr. Carnegie to the British Museum, another to the Emperor of Germany and one to the French Republic, and another, just about 10 days ago, to the King of Italy, but the original Diplodocus is across the street at the Carnegie Museum.

We also have in our Calvary Church here the finest specimen of the English Gothic type of church architecture that can be found on this side of the Atlantic. The Roman Catholic Cathedral is also a magnificent piece of architecture and well worth looking at.

As they say in the South, you all, jobbers and manufacturers and ladies, last but not least, you all are welcome, and we hope that when you depart from here several days hence you will take back with you nothing but the very warmest feeling for Pittsburgh and her people.

Local Manufacturers' Associations.

Benefits Secured Through Such Co-operation.

The York Manufacturers' Association.

BY JOHN C. SCHMIDT OF STANDARD CHAIN COMPANY, PITTSBURGH, PA.

Ever since its organization, suggested, I think, by Mr. Garland in Cleveland in 1901, this association has grown in members and interest, which prove its benefit. Now if

it be true that an organization of this character made up of members in all lines in various cities extending practically throughout the entire United States is beneficial, how much benefit can likewise be secured by having local manufacturers' associations? And I can best exemplify what I consider the benefits of such local bodies by telling you of the result of an organization of this character which was effected in York, Pa., my home town, some three years ago. In the first place I might say York is a progressive manufacturing city of about 50,000 inhabitants and noted for its diversity of manufactures. During the busy times of 1905, 1906 and 1907 considerable friction arose among the local manufacturers stealing one another's

York, Pa., Association. men and lack of harmony or lack of centralization, and on my invitation some half dozen of the leading manufacturers in York met in my office and



JOHN C. SCHMIDT.

we agreed to issue a call and form an organization known as the Manufacturers' Association of York.

The first and main difficulty was to select a secretary, and in the choice of a secretary I wish to say lies a very great measure of the success or failure of the organization. The secretary should be an adaptable man with tact and pleasant personality, and we were led to believe he should be a railroad man, as questions of freight and transportation would largely come in his province; but above all things he should be a local man, one who knows the community and the people in it. As we could not find a railroad man to answer these requirements, we selected a man who happened to be manager of the Adams Express Company. When the organization was effected it was suggested that the secretary take up the question of buying coal for the members collectively. Each manufacturer had, to a certain extent, a different grade and a different price; but on investigation it was found that three or four different grades of coal would be sufficient to answer all requirements, and we purchased from 30,000 to 50,000 tons, and

Buying Coal Collectively. now after three years the Manufacturers' Association is buying collectively about 85,000 tons. In this way the secretary has a string of 10 to 25 cars in town or on the way at all times so that members can secure coal at 24 hr. notice, any quantity and any grade, and it goes without saying that if each manufacturer has one purchasing agent and the purchases of coal being made as they are in lots of from 10,000 to 20,000 tons each, there is a considerable saving in price. The coal is billed to the members at the actual cost. For the first few months this method of purchasing was looked upon askance by the sellers of coal, but they soon realized that payments were made absolutely upon the 20th day of the month following shipment, and that therefore their bills were paid much more promptly than in the past. We all know that in dull seasons of the year, particularly with the smaller manufacturers, with tardy collections, one has to lean on his creditors, but every manufacturer desires to stand well in

Saving More Than Paid the Dues. his own community, and therefore we found that they took pride in paying promptly their bills due to the association, and if they had to lean on any person they would lean on somebody outside. These combined coal purchases gave an immediate and financial return of the dues paid and in almost each case the saving in the purchase of coal alone was more than the annual dues.

And speaking of the annual dues, this is a very impor-

tant matter. In the first place, you must have a good man for secretary in a centrally located office, and as the expenses are, say, \$3000 to \$4000 per annum, consequently the dues must be in proportion. We arranged it

Dues From \$25 to \$200 Per Annum by making the minimum \$25 per annum and the maximum \$200 per annum, basing it on the number of employees, and we found that this worked successfully, for there never has been a request within the three years by any member to have his dues reduced by reason of the fact that he is not employing as many men as when the organization was started. Where female labor is employed the members were assessed, as their earnings were less, on a basis of two females being the equivalent of one man.

It happened that immediately after our organization the great coal strike of three years ago occurred, and bituminous coal was selling at \$2 and \$3 a ton at the mines, whereas we paid but \$1.25 to \$1.60. The secretary visits the various coal mines and operators at least once a year and introduces the association methods, and the mine operators feel that they have a direct representative in our secretary, though they are not obliged to pay him any commission whatever. The concession they make is in price, which goes at once to the members.

The next item that we took up was the question of boiler insurance. We realized that the hazard of all boilers is practically the same, and we made a proposition to the leading insurance companies for

Boiler Insurance. some 100 boilers in number, providing sufficient concession was made. This stirred up

strong competition and the result was that we received our boiler insurance at extremely low rates. We afterwards took up the question of employers' liability insurance.

Employers' Liability. In this case the hazard differs at every plant, as is well recognized; but the secretary of the Manufacturers' Association accepted a contract as their agent of the Employers' Liability Company, the same being issued by the State Insurance Department.

As to fire insurance, numerous statistics were secured and a number of the items as to protection were shown up and called to the attention of those who had them under control. York has one of the strongest volunteer fire departments, and it is a hard proposition for us to convince the entire community of the importance of having a paid department, but we are hopeful in the near future of having a chief

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for the fire department, who will devote his entire time to the work and become as well building inspector of our city.

Committees.

The organization has an Executive Committee, to whom the management of the organization is largely intrusted, and who pass upon all routine business and have control of the property, receive and consider all matters Executive, which may be brought before it by members or committees and submit their report to the association at its monthly meetings. In addition to this committee we have various committees on arbitration, entertainment, insurance, municipal affairs, transportation and manufacturers.

The Arbitration Committee is one which in slack times has very few questions referred to it, but where any difficulties arise between members this is found to be a very serviceable committee, and one in which frequently considerable tact is required. Its duty is to hear and Arbitration, consider matters referred to it pertaining to the employment and handling of labor; to hear and consider any controversy or dispute that may arise between members of the association, and also to investigate and report on any matters of complaint that may be referred to it by the association, the president or the Executive Committee.

The Manufacturers' Committee is to consider matters referred to it by the association, the president or the Executive Committee and to investigate and recommend such unity of action upon matters of interest not assigned to other committees, including, as frequently happens, closing on Saturday afternoons, which may be divided up among certain trades so that each has uniform hours.

In addition to this committee we have one known as the Entertainment Committee, which is really quite important. They arrange to have three outings during the year, usually in summer, to visit some point of special interest, such as the York Haven Water & Power Company, the Maryland Steel Company at Baltimore, or other points of interest, particularly manufacturers. In addition thereto, we have at least one summer outing at some nearby Entertainment pleasure resort, and at all of these outings it is the custom for each manufacturer to take, at his expense, the heads of departments in his employ. This makes a very enjoyable and beneficial feature. The regular meetings of the association are held monthly on the first Monday in the month, and out of a membership of, say, 70, they have for the last three years had an attendance averaging, I should say, from 25 to 40 members. It has lately been our custom to have in attendance at these meetings some person specially interested in some branch of manufacture. For instance, a boiler insurance representative of one of the large insurance companies would make an address on the use of boilers and boiler compounds. At another meeting a representative of an insurance inspection company appeared before the association and explained the benefits of this inspection.

Freight Claims.

We have found it of considerable advantage to have the secretary of the Manufacturers' Association take up the question of freight claims, many of which have been pigeonholed and dust-covered sometimes for years. This has been caused possibly by the complaints not having been placed before the proper authorities. The secretary, however, will ascertain the exact authorities and the channels through which these claims pass, and by following them up and making the claim as one of the association rather than of an individual shipper, it has been found that they

Prompt Attention. received much more prompt attention. Again, there may be some inconsistencies in the freight tariff, by which a certain commodity from either the same or approximate territory is paying a higher rate than the shipper feels he is entitled to, and this and all data in regard to it is collected and presented as the representative of the Manufacturers' Association to the railroad authorities and in many cases that I could cite more favorable rates have been secured. We have had numerous instances of this kind that came up in our experience of three years.

In speaking of freight rates we also have arranged to have our members who care to do it send their old freight bills to the secretary, who will carefully go over them, study the classifications, and if any error is found in the rate or classification the claim is made by him and refunded. Quite considerable amounts have been secured by him by this apparently minor source. This is not the only form of collections, however, that the secretary does, as it frequently happens unpaid book accounts which the manufacturers cannot collect are placed with the secretary, who has often succeeded in having these claims paid.

Old Freight Bills Looked Up.

Association Literature.

A monthly bulletin is issued, which is sent to every member of the association, stating the work done during the month that will be of interest to the members, and publish-

ing a list of second-hand machinery owned by the members which they have discarded. In this way very large quantities of second-hand machinery which are useless to the owner find a market among other manufacturers in the same city, who need just the article. Besides this the secretary mails the lists to a large number of second-hand machinery dealers, who keep them on file, so that an appreciable quantity of second-hand machinery is sold through the efforts of the association.

Looking for Workmen.

Another very important accomplishment of the association has been the avoidance of friction between the members where firms solicit workmen from the other. By arranging frequent meetings of certain trades, such as machinists, wood workers, foundrymen, &c. (that is, employers of these classes of workmen), they are brought in a much closer touch with one another and this friction was done away with.

Syndicate Buying.

Should Jobbers Be Represented by Syndicate Buyers?—Should Manufacturers Quote as Favorable Terms and Prices to Syndicate Buyers as They Would to Their Principals, the Jobbers?

Co-operative Buying Among Retailers.

BY G. H. JANTZ OF AMERICAN WRINGER COMPANY, NEW YORK CITY.

This subject contains two questions, and their phrasing might indicate that whoever presented the question in seeking advice with regard to doing business through some combination. If that is the case, it would not be surprising, because this seems to be the syndicate or combination age. We see it spoken of in the papers every day. The latest is a \$51,000,000 dry goods combination, and as we read of enormous wealth which some have gained through combined action, we are led to question if it is better to conduct business independently or in combination with others.

We manufacturers have very little to say about the first question, as that is for jobbers to consider, but the second question we must

deal with because that comes straight home at some time or other to every manufacturer, and, when it does, then before deciding what to do we should be sure that we Deliberate thoroughly understand the situation and whom Decision. we have to deal with, as the results of a decision might be like that of a stone cast into the pond—the ripples continue to spread until they reach the shore all around and may do unintentional damage.

I think that retailers should have been included in this question, because syndicate buying is of much more importance to manufacturers, jobbers and retailers as applied to retail than to jobbing trade. I therefore take the liberty of directing attention to it.

I do not know that there is such an organization as a Hardware Jobbers' Syndicate, or Hardware Jobbers' Syndicate Buyers, but I do know that there are parties in New York who make a business of performing certain services for jobbers throughout the country, which I understand consist chiefly of watching markets, making reports, offering advice regarding prospective trade conditions, hunting up goods which their clients do not carry in stock

Valuable Service. regularly, but must have for certain orders, &c. Perhaps these parties are syndicate buyers.

There are no doubt many jobbers who have need of this kind of service, and find it valuable for their business. However, if a jobber wishes to arrange with some one to buy goods for him or perform any other service there can be no good reason why he should not be so represented. This, therefore, must be left entirely to the jobber, but whether or not the manufacturer should recognize such jobbers' representative for transacting business, that is another matter and must be left to the manufacturer.

Should manufacturers quote as favorable terms and prices to syndicate buyers as they would to their principals, the jobbers? I presume this question has been asked by some

manufacturer who divides the jobbing trade into classes or territories and has a different selling price for each class or territory, which prices are especially arranged to equalize transportation charges and meet competition, and that if the lowest price were quoted to a syndicate buyer

Danger of Demoralization. it might become known all over the country, and result in depriving the manufacturer of needed profit, causing demoralization of prices for himself and competitors without any lasting benefit to the jobbers which the manufacturer had calculated to sell at higher prices on an equalized basis.

To answer this question directly, I would say yes, on certain conditions quote as favorable terms and prices, if a quotation is made at all. If the syndicate buyer is recognized as the jobber's representative it carries with it the obligation of treating the syndicate buyer exactly the same as his principal, the jobber. Any other treatment would be unfair and worthless. If the jobber did not expect such treatment for his representative, he would not have made the arrangement to be represented. On

A Distinct Understanding. the other hand, if the manufacturer does not wish to transact business through the syndicate buyer and insists on doing it direct, there is no reason why the jobber should find fault, but the only way a price should be quoted to a jobbers' syndicate buyer is with the distinct understanding that the price applies only to the individual jobber for whom price has been asked and who is represented by the buyer making the inquiry, and that the price must not be given to any other jobber without permission from the manufacturer.

Co-operative Buying Among Retail Merchants.

I have taken the liberty of referring to retailers in connection with this question because I understand that retailers in some cities have formed plans for combining their orders or purchases for the purpose of obtaining quantity prices, and that this method of buying is growing into well organized syndicates, consisting of retailers located in different cities spread over considerable territory.

Retailers' Syndicates. The plan, I understand, is that one member is especially appointed or assumes the position to obtain prices and buy goods. Usually he is a merchant who does a large retail business and jobbing in a small way, on account of which he obtains jobbers' prices from some manufacturers. This party receives the orders, sends them to the manufacturers for shipment direct to himself or direct to the members of the syndicate. Thus each member secures goods at cost, plus a very small percentage on cost of goods, or pays a fixed sum per month as compensation for this service.

Here is where the real Hardware syndicate buyer exists, and it is this class of syndicate buyers manufacturers should watch. No manufacturer can tolerate this kind of buying and distribution of his goods and be fair to his other customers, be they jobbers or retailers. Any manufacturer who recognizes such syndicate buyers by deliberately giving jobbers' prices practically tells jobbers that their method of supplying retail trade is out of date, and says to retail merchants that if they want to buy his goods at lowest prices

Not Fair to Other Customers. they must club their orders or belong to some syndicate. What is said about manufacturers supplying retail syndicates applies with equal force to jobbers, and when jobbers' salesmen club orders for the purpose of giving a selected few of their customers special prices they are unfair to all their other customers, and deprive their employers of legitimate profit which they are especially employed to gain.

Every manufacturer who sells an article which bears a brand or trademark should regulate the selling prices, so that jobbers and retailers will make a profit without their being obliged to go into schemes for obtaining special or lower prices than regularly fixed. Under the method in general

Regulation of Selling Prices. use of supplying consumers through retailers and jobbers, it is proper that there should be a price for jobbers who distribute goods to retailers, and a price for retailers

who supply consumers; and manufacturers should regulate their selling prices down to the consumer. Goods are made for consumers; when the manufacturer supplies the consumer through jobbers or retailers the transaction is not perfectly completed without the jobber and retailer have made a fair profit. The manufacturer who does not care whether or not the jobber and retailer make a profit on his goods is extremely unwise.

Syndicate buying is a very dangerous thing for retailers to have anything to do with because that manner of buying will rob them of their independence. Individual merchants will become part of a system and subservient to the syndicate buyers and sellers, who will realize profits, which will make them anxious to increase syndicate buying, and they will eventually become dictators to the retailers if not to jobbers and manufacturers, without furnishing

Dangerous Ground. any capital or brains for running the retailer's business. Imagine what the condition of the Hardware business would be to-day if retailers all over the country were organized into buying syndicates

similar to the \$51,000,000 dry goods combination, or, for example, such a syndicate as I heard of recently, which has a membership of about 20, who it seems think that they have done very well; while the 20 are buying some goods at special low prices it is doubtful if they are any better off on that account. I do not believe that their profits will be any larger in the end, because competition regulates profits if manufacturers do not.

Syndicate buying is certainly an unhealthy condition in every way, and it is to the interest of every retail merchant not to tie up to it or have anything to do with it. In reality, it is only a scheme whereby a few make money out of many without earning it. A two-line editorial in a recent issue of the *National Hardware Bulletin* contained

Money-making Scheme for a Few. some very suggestive advice. It said: "Co-operative buying schemes are loaded with dangerous possibilities; no State official has indorsed them to our knowledge." The editor certainly has given good advice which every retail merchant should thoroughly consider, and he can render the trade very valuable service if he will write some more short editorials bearing on this subject.

I would advise jobbers to instruct their salesmen not to bunch or club orders. There is no profit in such sales, and it is the first step toward syndicate buying, which leads manufacturers and jobbers into unfair selling and causes demoralization of business in general. There is only one way in which to do business on a sound and successful basis, and that is for manufacturers, jobbers and retailers to be fair with each other, to live and let live.

Attitude of the Jobber Toward the Manufacturer in Establishing Branch Houses.

Jobbers Should Welcome Rather than Antagonize Them.

Permanent and Steady Market Assured.

BY H. C. ATKINS OF E. C. ATKINS & CO., INDIANAPOLIS, IND.

No jobber or association of jobbers would question the right or the wisdom of a manufacturer to exploit his own business to the very best of his ability and from every stand-

point. It is very natural for jobbers, whose average margin of profit is not sufficient to justify paying particular attention to the up-building of any individual manufacturer, to feel that they cannot, in justice to their own profit, spend time and money to develop the business of the manufacturer. The wholesaler feels that it is the manufacturers' business to look after creating a demand for his goods himself. When this work is done and the goods are introduced among the trade, then the jobber feels that he can afford to put the goods in stock, invest his money in the goods and sell them on

H. C. ATKINS.

the ordinary basis of profits which are usually granted to the jobbing trade by manufacturers.

Now this reason alone makes it very evident why manufacturers are obliged at times to establish branch houses in distributing centers for the sale of their goods, and par-

Branch Houses Promote Demand. ticularly to promote a permanent demand for the goods on the part of the smaller trade. The manufacturer does

not do this because he wants to do it as a rule, but because he feels that it is necessary to do so in order to develop the trade in a satisfactory and permanent manner. Therefore, the fact of establishing and maintaining a branch house does not determine the attitude which the jobber should take toward the manufacturer who has a branch house. But there are questions entering into the evidence which make up the verdict of the jobbing trade toward such manufacturers:

1. Do the goods made by this particular manufacturer possess sufficient merit to entitle the manufacturer to a place on the market?

2. Does he make the kind of goods that meet the requirements of the trade?
3. Do the goods give satisfaction?
4. Do these goods yield the jobber an adequate margin of profit to compensate him for carrying them in stock and selling them?
5. Does the fact that this particular manufacturer operates a branch house prevent him from maintaining a proper and adequate resale price to protect the jobber in his trade with the retail dealers?

If the answers to these questions determine that this manufacturer's products are worthy of a place on the market, and if this manufacturer gives the jobber an opportunity to make a profit out of his goods, there is no reason in the world, beyond a personal reason, why the jobber should not buy this particular manufacturer's product and sell it.

The Jobber as a Manufacturer. The jobber who controls the output of a certain factory is a manufacturer as far as the sales end of the proposition is concerned, and yet the attitude of his fellow jobbers toward him would not be any different than their attitude toward any other jobber. He would become a member of the jobbers' association, fully entitled to all consideration as such. It is true that in this particular case there could not be any penalty enforced against such a jobber as might be enforced in the case of a manufacturer who does a jobbing business.

Let us go a little farther. There is no reason in the world why a manufacturer with a branch house for the sale of his own goods should not be of vast assistance to the jobbers in his territory. The manufacturer then becomes a live force for the introduction and sale of his goods and for the establishment of his goods on a permanent basis. No manufacturer opens a branch in any particular distributing territory without the avowed purpose of interesting the jobbers in that particular territory in his goods, and no manufacturer would hesitate to co-operate with the jobber in the profitable sale of his goods, if the jobber will let him.

No manufacturer operating a branch house has anywhere near the number of salesmen on the road, nor does he cover the amount of territory that is covered by the jobber's salesmen, nor as closely. It is his aim to do just enough business and keep just enough force behind his goods in a particular distributing territory to keep his goods alive and make them profitable for the jobber to handle. He helps to keep out competition in kindred lines on the part of his manufacturing competitors, and if the jobbers in the territory in which he operates a branch house co-operate with such a manufacturer, the results can be made most satisfactory to the jobbing house. I venture to say that if the mutual interests of the jobber and manufacturer were considered in this broad way and co-operation was the rule, the manufacturer who had maintained a branch house in a certain territory for 10 years would be asked to continue that branch house as an aid to the jobbing interests if he should seriously consider giving it up. The interests of the manufacturer and the wholesale Hardware distributor in a proposition of this kind are mutual. It is distinctly to the interest of the manufacturer to protect his wholesale trade by establishing and maintaining his own resale prices to the retail trade and requiring his wholesale trade to do likewise.

With the manufacturer on the ground, knowing the conditions that obtain in a territory, the wholesale Hardware trade is in a position to receive from the manufacturer the advertising assistance necessary to enable the jobber to handle the goods profitably with a minimum of expense for selling and a maximum of efficiency for delivering. A great many manufacturers make varied lines of goods not necessarily confined to one class of trade. These manufacturers, more than any others, require the assistance of branch houses to properly develop and maintain their trade in territories at a distance from their factories. If they are given every assistance by the jobbing trade they will in turn protect the jobber in his trade and so form between the manufacturer and the wholesale trade a community of interests that will be for the benefit of both.

I can conceive of cases where manufacturers go into the jobbers' territory and open branch houses with the avowed intention of taking the dealers' trade at prices less than the jobber could afford to make. The manufacturer's reasons for so doing may be for revenge, or with the mistaken idea that he was to profit by the transaction. It makes little difference what his reasons may be for establishing such an organization, but such a course would only be pursued by the manufacturer who had no regard for the jobbing trade, and he would not be inclined to care what attitude the jobbing trade

should take concerning his goods. Therefore, any penalty that might be inflicted upon such a manufacturer would not deter him from carrying out his intentions, and penalizing manufacturers for maintaining branch houses would, therefore,

become a punishment only to the manufacturer who has in mind working in common with the wholesale trade.

In these days business houses cannot stand still. They must grow or they will fall behind. Manufacturers cannot be satisfied while their competitors are reaping a harvest in a certain distributing territory, nor will they remain quiet and let a competitor go into a territory where they have been strong and make an effort to take their trade away. Manufacturers must look after their fences.

Looking After Their Fences. Looking after their fences does not mean unfair competition in trade necessarily; nor does it

mean failure to maintain profitable resale prices on manufactured products. Therefore, we can conceive of vast benefits to the wholesale trade from the policy of the manufacturer who establishes a branch house in a certain territory and extends to his jobbing trade in that territory a price which will enable them, by co-operating with him and maintaining a resale price on the goods, to make a reasonable profit, or even an exceptional profit, as the case may be. In this case the manufacturer will use every means within his power to keep his goods favorably before the buying public, and so enable the jobber to maintain his trade on these goods without fear of competition from other sources and with full knowledge that his profits are to be maintained.

I know of a good many manufacturers who do not have branch houses whose goods are eagerly sought for by the jobbing trade, but who do not even maintain the differential in price between the consuming public and

Ignoring the Differential. the jobbing trade, but sell at practically the same price and cut out the possibility of a jobber marketing these goods to the consumer who buys in large quantities, or really the most profitable part of the jobber's trade.

This brings us to the question that is ever before the jobbing trade as well as the manufacturer, and that is the increase in demand for special brand goods. What has caused this demand? To my mind the main cause is the competition between jobbers themselves on standard manufactured brands. It has had the effect of so reducing their legitimate profits on some of the most staple goods that are handled by the wholesale Hardware trade that these staple goods are no longer attractive to them from a profit standpoint. The jobbing trade can, without the knowledge or consent of the manufacturer, reduce the profit on the manufacturer's goods to a point where the jobbing trade is no longer interested. The jobber then begins to hunt around for a means to cure this evil and hits upon the special brand, which is made for him by this same manufacturer, perhaps at a price which will enable him to make a fair return on his investment. The jobbers are well and favorably known to their local trade. Their reputation is good and they take the chance of making use of their good will to establish brands of their own in order to recoup themselves for having been obliged to meet unfair competition among themselves.

Occasion for Special Brands. This brings us to the question that is ever before the jobbing trade as well as the manufacturer, and that is the increase in demand for special brand goods. What has caused this demand? To my mind the main cause is the competition between jobbers themselves on standard manufactured brands. It has had the effect of so reducing their legitimate profits on some of the most staple goods that are handled by the wholesale Hardware trade that these staple goods are no longer attractive to them from a profit standpoint. The jobbing trade can, without the knowledge or consent of the manufacturer, reduce the profit on the manufacturer's goods to a point where the jobbing trade is no longer interested. The jobber then begins to hunt around for a means to cure this evil and hits upon the special brand, which is made for him by this same manufacturer, perhaps at a price which will enable him to make a fair return on his investment. The jobbers are well and favorably known to their local trade. Their reputation is good and they take the chance of making use of their good will to establish brands of their own in order to recoup themselves for having been obliged to meet unfair competition among themselves.

The manufacturer is placed in a very awkward position in this matter, to say nothing of his loss of profits. He has large sums invested in plant and machinery on which he is entitled to a fair income. He has been honest and fair in his dealings with the public and has built up a good business; but now the very foundation of his business is threatened with slow disintegration, not from any fault of his own, but from the competitive

Manufacturer in Awkward Position. methods adopted by his trade in trying to secure business on his line of goods. It takes a long time to bring about a condition of this kind, but the condition may confront us any day, and it is a rather insignificant jobber that is not thinking a good deal about special brands.

Where are your profits going to be in 10 years from now on special brands? Is not John Smith's special brand Tool made by the same manufacturer who makes your Tool (probably picked out of the same bin or stock rack) just as good a Tool as you are selling? Can you prove to your trade that yours is any better? Then what is going to prevent John Smith from selling his Tool

Special Brands 10 Years Hence. 10 per cent. cheaper than yours? In 10 years from now your special brands will be more unattractive to you than manu-

facturers' brands are to-day for just the same reason—namely, close competition among yourselves. Now, is not the manufacturer doing you a service when he goes into your territory and smooths out such unfair competition, keeps his goods before the public and allows you to make a legitimate profit on goods which are demanded by the retail and consuming trade? When this special brand business becomes unprofitable the manufacturers who have established their own goods and jealously maintained their resale prices will then be in a position to give the jobbers a line of goods which will again place them on a satisfactory plane from a profit standpoint.

The interests of the American Hardware Manufacturers' Association and the interests of the Southern Hardware Jobbers' Association lie along parallel lines. The de-

sire of the manufacturer is to have a permanent and steady market for his product throughout the jobbing trade, but his efforts to establish such a market often compel him to spend money in trade developments which he would prefer not to spend. This expenditure for the development of trade ultimately becomes the heritage of the jobbing trade as a direct result of the desire on the manufacturer's part to do a profitable business squarely and honestly, at all times protecting the jobber in his profits.

Private Brands versus Regular Brands.

Is It Treating the Manufacturer Fairly and Honestly to Ask Him to Sell His Product Under Private Brands and Then Demand That He Do Not Sell Goods of His Own Brand to Catalogue Houses or to Retail Houses?

A Change in Manufacturers' Distributing Methods Inevitable if Jobbers' Private Brand Policy Is Continued.

BY J. C. BIRGE OF ST. LOUIS SHOVEL COMPANY, ST. LOUIS, MO.

I have not the most remote idea who framed the interrogatory which is presented for our consideration, but believe that I am not expected to question the honesty of merchants, whose integrity as a class is doubtless as high as that of any other body of business men in our country. Even though merchants do refuse to sell goods bearing the manufacturer's name, and at the same time demand that the manufacturer shall not sell to catalogue or retail houses, the demand is thoroughly honest, because it is absolutely free from craft or deceit. The demand may also be accepted as fair because the manufacturer is not bound under any law of our land to conform to the request, but may sell to any one who is willing to buy. Moreover, I am not pledged to speak on the affirmative of

the question. It has not been my desire to discuss this subject, and I certainly would not do so in the conventional manner of a debate. I will, however, respond to one phase of the question, and ask: Is the policy wise?

As the factory which I here represent has never sold any goods to any catalogue house, and for many years has generally declined to quote retailers or large consumers, some of which purchase many lines of Hardware in greater quantities than do Honorable Position. many of the firms represented here, my standing on the question at issue ought to be regarded as honorable when viewed from the standpoint of the jobber. It, therefore, seems to me that a confidential talk with the merchants here gathered may be made by me with as good grace as if made by one who has acted less in accord with their expressed ideas. For a better understanding of the situation a word concerning the relations of merchants and manufacturers seems to be both pertinent and necessary. Secretary Fernley in his address yesterday said the good manufacturer should recognize the jobber as the proper avenue of distribution.

It may be said at the outset that the Hardware Manufacturers' Association has heretofore on more than one occasion and in response to your request declared that tenet, and yet again this law is handed down from your highest authority for our guidance. In general we have acted in accordance with that law. We have also left it for you to fix the further channels through which our products shall finally reach consumers, which is presumably through the retailers. The very few manufacturers who have sold direct to mail order and catalogue houses or to consumers do not appear to have been handicapped because of their refusal to conform to your request, for you have apparently purchased as freely from such manufacturers as you have from those who have voluntarily bound themselves to you. On the whole, however, you have been treated in this mat-

ter by the manufacturers with remarkable fairness and with a consistent regard for your expressed wishes. You have been conceded by the majority of those manufacturers the practical and untrammeled control of the Hardware trade of the country, including the retailers, municipalities, the Government, railroads and other large corporations; also the trade of many large and some very small consumers, a portion of which if you would be thoroughly consistent with the theory that the retailers should sell to consumers would go to consumers through the retailers. It must be admitted, however, that the trade of some of the large consumers is beyond the reach of the average retailer, and is possibly beyond the capacity of some small jobbers to supply and under normal conditions would be handled by the manufacturers direct. This question of distribution is also confronting merchants in other branches of trade. In Portland, Ore., at the national convention of retail grocers held last week, a resolution was adopted and telegraphed to the Jobbers' Association in Detroit to the effect that a wholesaler who supplies a railroad or other so-called consumer should be classed by the manufacturers as a retailer and sold as such.

As already stated, the channels by which Hardware shall reach consumers is left with you, but the premise is that when the goods go through your hands to those large consumers it is required by you that the manufacturers' names must be omitted from all articles and that your private brands shall be substituted. This is being done at our expense and with a meekness worthy of saints. Until recent years certain articles in general use, having been continuously made with great care by skillful workmen under the honest and careful supervision of managers who aim for high standards, finally became well known throughout the world because of their recognized excellence. In some of these productions were expressed the experience and skill of a generation. The high quality which resulted can hardly be maintained by the less careful processes to which your present methods are leading, and which is bringing on an era of cheap and inferior goods. The good reputation of some of these goods is cherished by many producers as the heritage of an honored name which is worthy of preservation. A few years ago some jobbers arranged to have their firm name placed upon goods in conjunction with the words, "Made expressly for," a legend which was not in any sense calculated to deceive. The laudable purpose of this idea was undoubtedly to advertise the merchant.

In the course of time certain jobbers arranged for special articles to be used for competitive purposes from which the manufacturer's name was wholly eliminated, and in lieu thereof there appeared a name under which the article was sold, but which the manufacturer was not permitted to use on the goods of another dealer. Thus was inaugurated private brands.

There was one merit in this system, which was that the merchant could from time to time buy these goods from the lowest bidder and could buy them during any season from various factories, which was a common practice, all the various goods going out under the one private brand, the ultimate buyer remaining ignorant, and possibly indifferent, concerning the real source from which the goods came, naturally presuming that all bearing a given brand came from one factory. It must be manifest to any intelligent person that under this system the quality of goods in general is sure to deteriorate, because the various manufacturers, some of whom may, perhaps, have but a single order, furnish the articles according to the price, having no interest except to satisfy the jobber and convince him that he will fit the quality to the price, as agreed. The custom has become so general that crossroads merchants and retailers throughout our country, emulating the dignity of larger jobbers, now desire upon their goods some name which will conceal their origin and which usually means nothing to a consumer.

The practice referred to is being adopted in the dry goods trade and by druggists, grocery retailers and small trade generally. In the drug and grocery trade the fact has been developed that the makers and sellers of private brands are the most active and powerful influence in the country against a strict interpretation and a vigorous enforcement of the Pure Food

In the Drug and Grocery Trade. law and in favor of the use of artificial preservatives in food products. It is claimed by merchants that having their names placed upon articles is their assurance of good and uniform quality. True, the name of a merchant in the place where it properly belongs is as good as that of a manufacturer, but in no sense can it be equivalent as a guaranty of quality to the names of the men who make the goods and who are the only persons who fully know their real character.

Merchant's Name No Guarantee. and are primarily responsible for their quality. The good reputation of a jobber rests in his being an honest, fair and successful merchant. It is not in his being a manufacturer, because he is not a manufacturer. His proper and admitted



J. C. BIRGE.

function is that of a distributor. If he really becomes a manufacturer, as some do in a small way, the manufacturers with equal propriety may then also become distributors. If manufacturers concede to you jobbers the absolute sale of their products and never interfere with your customers, and you in return will not represent their standard goods, it

Proper Recognition for the Manufacturer. is not strange that the producer should be solicitous for his own reputation and become inclined to

press his goods through channels which will give him proper recognition. The vital point, therefore, from the standpoint of the manufacturer is how can he be recompensed for parting with his name and reputation.

In later years the so-called catalogue and mail order houses referred to in the question before us have been established, whose merchandise was originally supplied almost entirely by large jobbers in our commercial centers.

Jobbers Built Up Catalogue Houses. In referring to those two types of houses, which have become numerous, I will for convenience speak of both classes as catalogue houses as indicated in the resolution. These houses, as was known from the beginning, have sold direct to consumers, and during the time when they were supplied by the jobbers their trade increased in volume to such an extent that it soon exceeded that of the largest regular merchants. They accordingly began to buy some goods from manufacturers, whereupon manufacturers generally were informed that these houses are the enemies of the retailers and the manufacturers were accordingly requested not to deal with them because the jobbers were the proper channels for distribution of their products. Catalogue houses from the time of their establishment have doubtless been enemies of the retailers, and also became enemies of the jobbers after the jobbers were unable to hold their trade without protest from the retailers. Previous to the serving of the notice upon the manufacturers to which we have referred, the catalogue houses sold many goods bearing the manufacturer's name, this being their preference. They also introduced many new articles which the manufacturers had to offer, and which goods might even now be sold through that channel more conveniently and in larger quantities than through any other. Since the crusade was inaugurated these houses have been forced to buy the greater part of their goods under private brands, and therefore now can and do sell, for reasons well understood, at a lower relative price than they did standard factory brands on which quality and resale price was controlled. It must be admitted that the development of the catalogue house business means a corresponding curtailment of the retailer's business, and since the jobbers are supposed to have generally discontinued that trade, it is to that extent a curtailment of the jobbers' business, but it does not reduce the demand upon such manufacturers as will sell them, and for the obvious reason that the goods must be produced at some factory. They certainly get them somewhere. The effect of the refusal of many manufacturers to supply these houses has forced them also to enter upon the manufacture of some lines—a fact the force of which you may not fully appreciate.

Your demand, as we understand it, is that the manufacturer should not sell these catalogue houses, nor to the retailers or to the large consumers already referred to, nor to any merchant not classified on your list as a jobber. You

A One-Sided Proposition. urge that we should sell exclusively to you—the jobber. The manufacturer naturally asks you if in return for the restricting of his trade to you alone you will represent his goods or give him a protection such as you ask for yourselves. You must admit that your answer is substantially "No," that he may make such goods for you as you may order, but he must not be known in the transaction. The goods must be known as your goods and apparently as of your make, and you are willing to compel the retailers to compete against these new catalogue house special brands with your own special brands, and withhold from them as far as possible all standard goods. This

A Barren Outlook for the Maker. is the real situation and it affords a barren outlook to an enterprising and conscientious manufacturer if the con-

dition is permitted to continue. The manufacturer has often asked you, "Why will you entirely eliminate our brands, many of which are of value and of long standing, and at the same time expect us to keep our regular goods out of the market?" The reply which you have frequently given is that you can sell private brands to the retailer and make a better profit on them than you can on standard factory brands. Now, it is claimed by nearly every manufacturer whose opinion I have heard expressed that he will sell a regular brand of his goods of a given grade as cheaply as he will a special brand of like quality. As a fact, when we

The Matter of Cost. consider the additional cost of making special brands, which must in many cases be started from the beginning and which is expensive, especially on small assorted orders, also the more important fact that the manufacturer can make up

standard goods in larger quantities and in straight runs in advance of shipment, they can and will furnish regular brands of goods at as low a price to the jobber as they will specially branded goods of like grade. Who, aside from the manufacturer, suffers from these uneconomical methods? It must be clear that if the jobber makes a greater profit on his special brands than he does on factory brands a loss necessarily falls not only upon the manufacturer, but upon the retailer or consumer who

Jobber Gets the Profit. pays the difference. Is it, therefore, to the advantage of the retailer and consumer to buy standard brands? It certainly is, because for reasons already given they are liable to get better goods at a given price, unless, as is sometimes the case, the article is really of the highest quality, but none are of higher quality than the manufacturers' best brands. Moreover the indorsement, the pride and prestige of a manufacturer is behind the goods bearing the manufacturers' brands, and factory brands are

universally preferred by artisans who are familiar with tools. These artisans and workmen are continuously moving from one State or district to another and are

therefore often confronted with unfamiliar names upon the goods offered for sale. A jobber may as safely warrant an article bearing a manufacturer's brand as he can the same grade of goods without that brand. It must be perfectly clear to any intelligent retailer that a standard manufacturer's brand of a given grade is more salable and more profitable than are the majority of nondescript brands in common use. If a low grade is desired by the merchant, the manufacturer can produce it and label it as such and the retailer knows exactly where it relatively stands. He will know that a manufacturer's cheapest grade can be bought just as cheaply as a jobber's brand of the same grade.

Is it to the advantage of the jobber to sell special brands? It must be admitted that a very few jobbers are earnestly seeking to preserve the high quality of certain goods made for them under some of their private brands,

Private Brands No Index to Quality. but the thousand and one private brands used by the majority of jobbers have been no index to the real quality of the goods. It would, therefore, seem

clear that a jobber who buys good goods on which the producer's name is placed is under the existing lamentable conditions, in far better condition to compete with the numerous special brands with which the market is now flooded and with the catalogue house trade than by using a private label. There can hardly be a doubt on this matter from the standpoint of the retailer. The use of special brands has been carried to such an extreme that it leaves the manufacturer with no avenue for the distribution of his standard goods, except he shall pass over you and in some way directly reach the distributor. If the manufacturer had manifested a disposition to sell to consumers the present condition would be better understood, but because of your attitude you

Driving Makers to Extreme Measures. are driving the manufacturers to extreme measures, and some of them are

now preparing to reach the trade with their best goods by direct channels, and in the very near future, unless you will co-operate with them as they have with you, and in some reasonable degree represent their products, the sale of whose output has been honestly and completely in your hands, you will soon discover that your chief competition will not come from catalogue and mail order houses, but it will come from manufacturers direct. There has been nothing heretofore to prevent them from reaching for a direct solution of the matter except the consideration which they have had for you, the good will which they have felt toward you, and their evident desire to work through the old established

To Continue Would Be Destructive. channels; but you are pushing them to the limit by asking them to continue a policy which is destructive to the reputation which they have at

stake. This reputation and their position in the markets of our country have been set aside to concede to you a profit on all the goods which they manufacture by passing them exclusively through your hands, leaving them to remain an unknown quantity except in their relations with you.

In the face of this fact there now comes the oracle of the National Association, who in his address to you yesterday after referring to the encroachments of Northern jobbers into your territory with great solicitude for your welfare emphasizes the

Encroachments of Northern Jobbers. duty of manufacturers to protect you in this competition. Protect against

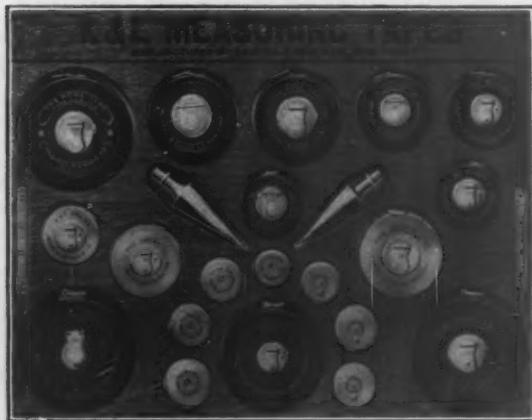
what? Is it to be against his refractory clients whose goods you do not know who made, to protect you on goods which we do not know who made? There can be no protection when you choose to remain a competitor of the manufacturer. He can protect only on known goods.

I would, therefore, answer the question, Is the policy wise? by saying to you in all sincerity that its ultimate effect will doubtless show that it is not wise, but that it would be wise for a considerable number of you to introduce into your stocks some regular brands of manufacturers'

goods and represent them fairly, making it for the interests of manufacturers to sell exclusively through you. They will surely give special recognition and protection to all merchants who will thus co-operate with them, and some merchants are now approving this policy. Failing to do this, there is sure to be a material change and a general upheaval in the methods of many manufacturers in doing business, and this in the very near future, because there are many strong and aggressive producers having staple, well-known goods, who are determined that these products shall in some way be fairly represented.

K. & E. Tape Display Case.

KEUFFEL & ESSER COMPANY, Hoboken, N. J., and 127 Fulton street, New York, has brought out a display Case for the exhibition and sale of Measuring Tapes in stores, and particularly Hardware establish-



Display Case for K. & E. Measuring Tapes, &c.

ments. It is made of highly finished quartered oak, the dimensions being 20 in. wide and 15 in. high. The trays are loaned without charge, the buyer paying only for the merchandise contained. There are compartments for six Metallic Tapes of 25, 50 and 100 ft. lengths, 11 Steel



Malin's Clothes Line Prop made from Kiln Dried Stock with Japanned Malleable Iron Ends.

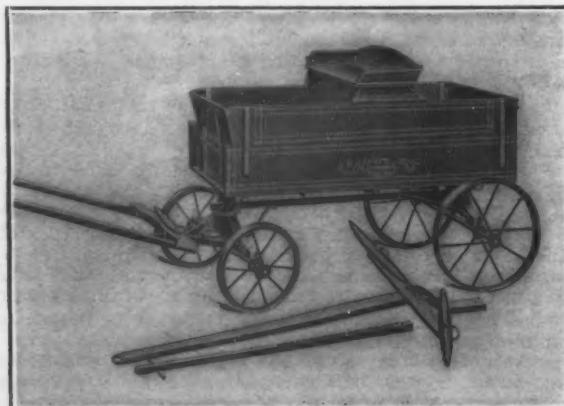
Pocket Tapes of 3, 6, 9, 25 and 50 ft. lengths, and 36, 60, 72 and 96 in. styles; also one each Cornell and Armor Steel Tape and one Linen Tape, all 50 ft. long. There are likewise one each 1 and 2 ft. Folding Steel Rules, and one each 6 and 8 oz. Plumb Bobs. The Steel Tapes in the combination are all supplied in the new K E C O finish, which has a jet black background, upon which the numerals and graduations show distinctly, affording at a glance easy, accurate reading. The lines will not rust through moisture, occasioned by handling or from the effects of dampness, it is said, this feature being especially helpful in Southern and seacoast territory where Tapes from one cause or another depreciate most quickly. All K. & E. Tapes are made with compensating centers for adjusting wear in the center and regulating the friction.

The Androck Wire Baskets.

The Andrews Wire & Iron Works, Rockford, Ill., are manufacturing wire baskets in $\frac{1}{2}$, 1 and $1\frac{1}{2}$ bushel sizes, made of a single piece of double crimped hard wire cloth clenched onto a heavy frame, strongly braced, after which they are heavily galvanized to solder every joint and make them rustproof. They are recommended by the company for use in harvesting root crops and fruits, washing vegetables, handling fish on docks, carrying small wood parts in factories, or for various purposes on the farm, and because of their strength and durability for transporting any material that will not fall through the meshes.

Wabash Handy Farm Wagon No. 41.

The extra large and strong wagon illustrated herewith is designed to serve as a handy vehicle for real work as well as play. The wagon has just been brought out by the Wabash Mfg. Company, Wabash, Ind., the object being to supply a vehicle of convenient size for use



The Wabash Handy Wagon No. 41, Extra Strong, for Use About Yard and Lawn, in the Shop and as Delivery Wagon for Stores, &c.

about the yard and lawn, and serviceable as a hand delivery wagon for stores, offices and factories. It is built with extra heavy hardwood gear, fully ironed and fitted with a malleable iron fifth wheel and steel braces. It is mounted on $\frac{5}{8}$ in. axles, carrying steel wheels with T steel rims $1\frac{1}{4}$ in. across the tread. The hardwood box, without side boards, is 40 x 18 x $6\frac{1}{2}$ in., and is finished inside with red and outside with green, the wheels being bright vermillion.

Malin's Clothes Line Prop.

The Malin & Co., Cleveland, Ohio, is offering the clothes line prop shown herewith. It is made from kiln dried stock, free from knots or defects, and sanded, with



japanned malleable iron ends. The prop is 8 ft. long, $1\frac{1}{4}$ in. wide and 15-16 in. thick. The manufacturer remarks that it is easy to put on a line and that it cannot be blown off.

Klein's New Tools for Line Construction Work.

Mathias Klein & Sons, 87-89 West Van Buren street, Chicago, Ill., have added to their stock of linemen's supplies, line construction tools and material, the articles shown in the accompanying illustrations. The tool bag

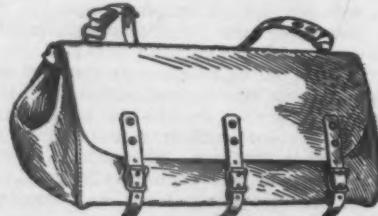


Fig. 1.—Leather Tool Bag for Inspectors and Electricians, Made of Russet Leather with Welt Seams.

for inspectors and electricians, shown in Fig. 1, is made of russet leather with welt seams and provided with extension straps across the ends of the opening to permit its being widened when additional room is required. There are three retaining straps on the flap and loops under the flap for carrying a saw. It is also provided with shoulder strap for carrying. The bag is made in

16, 18 and 20 in. sizes. The wrench, Fig. 2, which is shown full size, is especially adapted for use on terminal nuts, receivers, transmitters, binding posts, &c. The three different side openings, which will engage either square or hexagonal nuts, are of the following dimensions: $\frac{3}{8}$, 7-16 and $\frac{5}{8}$ in. One end of the wrench is bent at an angle of 45 degrees to allow its use in confined places. The total length of the wrench is 2 13-16 in. The metal pole supporters, shown in Fig. 3, have the advantage of lightness and strength, comparative smallness of diameter of the uprights, and are designed for greater convenience in handling and to allow the follow up man to work



Fig. 2.—Terminal Wrench Especially Adapted to Use on Terminal Nuts, Receivers, Transmitters, Binding Posts, &c.

with more agility than with those of the wooden pattern. It is pointed out that being of metal the supporters are not warped, twisted and weakened by exposure to the weather and therefore durable. The flanges at the feet are to prevent the supports sinking into soft ground. Both styles are made in the customary sizes of 6, 7 and 8 ft. The steel tie and splicing wrench, Fig. 4, is 7 in. over all. The purpose of the device is to "tie in" the line wire to the insulator. In practical use the tie wire already bent in the customary U shape is slipped over the insulator, with the open end of the U resting on the line wire; then one of the ends of the U is put through the hole in the eye, and the tool shoved back against the line wire. Then by a rotary movement of the wrench around the line wire it curls the tie wire around

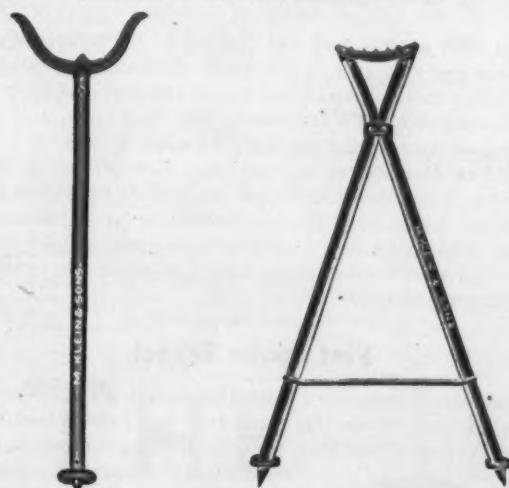


Fig. 3.—Klein's Metal Pole Supporters with Flange at Foot to Prevent Supports Sinking Into Soft Ground.

the line wire, in the form of a spiral. The other end of the U is then treated likewise and the line is permanently fastened to the insulator. Linemen ordinarily do this work with pliers, but, the manufacturers state, the wrench is a time saver and makes a clean, solid job, and without danger of nicking the line wire. The splicing end is intended for use along with the splicing clamp. The ends of the wires to be connected are held with



Fig. 4.—Steel Tie and Splicing Wrench to "Tie In" the Line Wire to Insulator.

the splicing clamp and the projecting end is caught with the shoulder of the wrench, and by turning the wrench

around continuously it will coil the wire tightly and evenly on the line wire, making a clean, tight splice. It is made for copper wire, and splicing Nos. 4, 6, 8, 9, 10 and 12 iron wire, or for Nos. 2, 4, 6, 8, 10 and 12 copper wire.

Socket Wrench and Sockets.

The Frank Mossberg Company, Attleboro, Mass., is offering the nickel plated socket wrench and sockets, shown herewith, designed for use on automobiles, motor boats, gas engines, pumps and other light machinery.

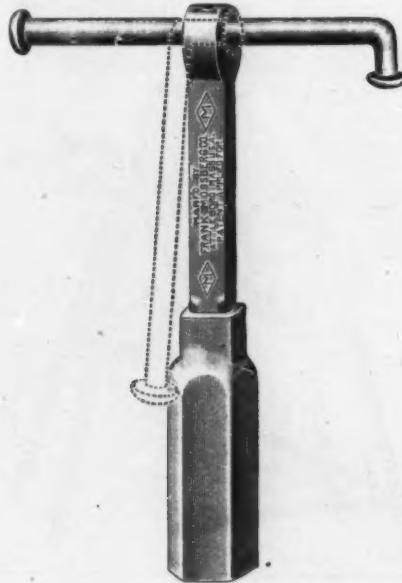


Fig. 1.—Nickel Plated Socket Wrench for Use on Automobiles, Motor Boats, Gas Engines, Pumps and Other Light Machinery.—One-third Actual Size.

Dotted lines show how the handle of the wrench can be folded down, so as to lie flat with the body when not in use, thus requiring but little room in kit or tool box. With the special hexagon socket shown on the wrench it is particularly adapted to removing or inserting spark plugs, the socket being of suitable length—4 in., and size of opening 29-32 in.—to take in all standard spark plugs. As a part of the tool equipment for special machines, the wrench may be furnished with any required assortments, those illustrated in Fig. 2 only being representative of the line. The length of the special spark plug socket makes it convenient for use in places diffi-

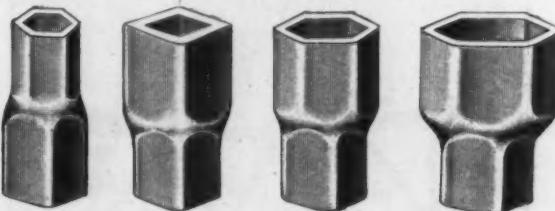


Fig. 2.—Sockets for Use with Wrench, Both Hexagon and Square Sizes, Also Special Spark Plug Socket.

cult of access and the length of the handle furnishes sufficient leverage. The company is also introducing the cotter pin puller and spreader, shown in Fig. 3. It is $7\frac{1}{4}$ in. long, 13-32 in. in diameter, furnished nickel plated or mottled finish. The tool is pointed at one end for

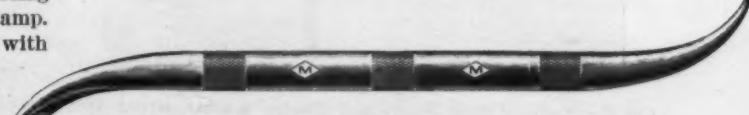


Fig. 3.—Cotter Pin Puller and Spreader, One-half Actual Size.

inserting into the eye of cotter pin, and chisel shaped at the other end for spreading the end of cotter pins, thus combining two tools in one. It is made of steel, thoroughly hardened and tempered.

Victor Tubular and Challenge Steel Frame Grindstones.

Two new steel grindstone frames recently added to the line made by the Richards Mfg. Company, Aurora, Ill., are here illustrated. Fig. 1 shows the No. 400 Victor frame, the legs of which are formed of strong tubular steel. The form of bracing used makes the frame very

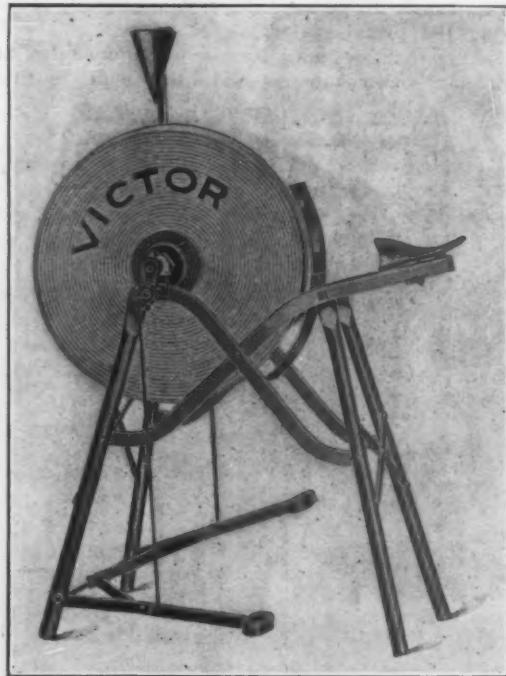


Fig. 1.—Victor Tubular Frame Grindstone, No. 400.

strong and rigid. It will be noted that the brace from the rear to the front legs is made in one piece and projects outward to form the seat support, being patented by the company. Power is applied by journals and pedal cranks set with ball bearings, which contribute materially to the smooth and easy running of the stone, giving

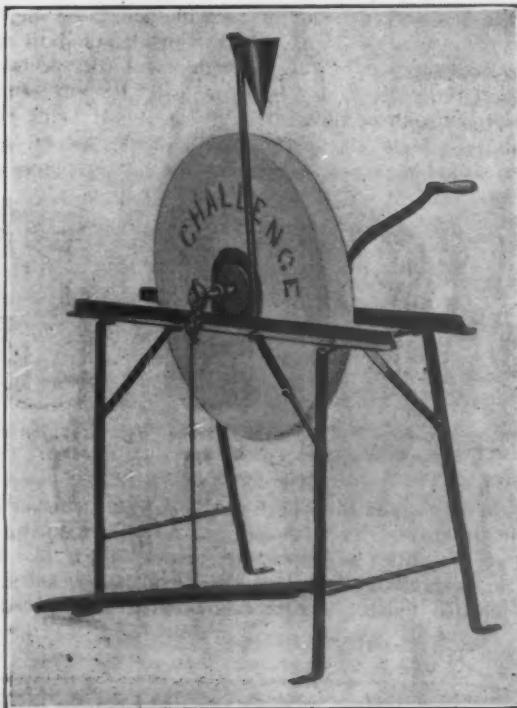


Fig. 2.—Challenge Steel Frame Ball Bearing Grindstone, No. 410.

maximum results with minimum effort. The seat can be adjusted on the support to any desired position. The stone used is of the best Berea grit, and is designed for general grinding. The sizes run from 19 to 22 in. in diameter and from 2 to 2½ in. in thickness. The frame is finished in black and red enamel, the framework be-

ing of bright vermillion red and the trimmings in black. The machine is shipped knocked down in compact form with the stone protected, making a secure and easily handled package. The No. 410 Challenge frame shown in Fig. 2 is of all steel construction. It is braced by cross bars of angle steel in a manner designed to impart the desired rigidity. Only one foot pedal is used with this machine, and a hand crank is supplied, to be used instead of the pedal at the option of the operator. It is mounted with a stone of the quality above described and is furnished in three sizes. It is also finished in red and black and is durably constructed for general service.

Globe City Mail Boxes.

The accompanying illustrations represent two of the four standard patterns of mail boxes, made by the Globe Mail Box Company, Indianapolis, Ind. The boxes are stamped from galvanized steel, and firmly riveted and clinched together, using no solder in construction. All of the boxes are so made that the mail is thrown forward when the door is opened. The boxes illustrated are



No. 1.



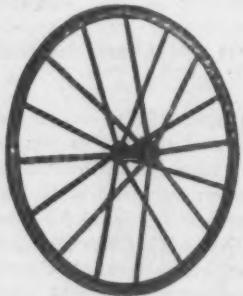
No. 4.

The Globe City Mail Boxes, Stamped from Galvanized Steel, Firmly Riveted and Clinched Together.

fitted with cabinet lock and two keys. Oil tempered steel springs are attached to the doors for holding papers, &c. No. 1 box has a hasp at the top of the door, which forms a convenient handle for pulling the door open, and is so arranged that a padlock may be used to lock it. This would be desirable should the other lock get out of order. The No. 1 box has glass panel in the door for viewing the contents, while No. 4 has two peepholes for the same purpose. The boxes are finished in aluminum or dead black; each put in a folding paper box, and packed in crates of one dozen each.

Flat Spoke Wheel.

The accompanying illustration shows a flat spoke patented wheel put on the market by the Erie Wheel Company, Citizens' Building, Cleveland, Ohio, for use on baby carriages, go-carts, express wagons and hand cultivators. Later it is expected to make a heavier wheel for general agricultural purposes. The wheel is made up from two pieces of sheet steel, the rim being one piece, while the hub and spokes are formed from another, the sheet being slit at both ends, rolled into the form of a tube, and the spokes bent downward to meet the rim of the wheel. On the end of each spoke a shoulder is



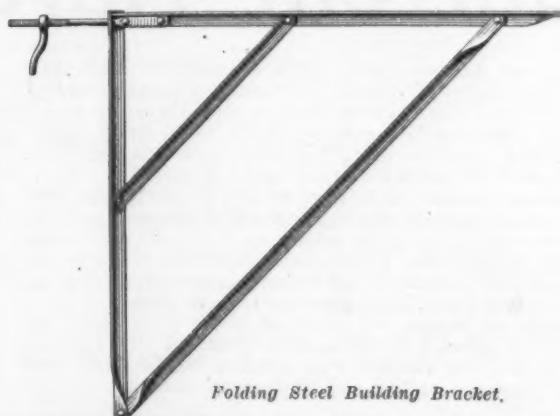
Flat Spoke Wheel Made of Two Pieces of Sheet Steel.

cut, so as to give the exact length of the spoke when the spokes are riveted into the rim. The hub is perfectly centered, so that the wheel will run true. It is pointed out by the manufacturer that the wheel weighs no more than the ordinary wheel, yet is much stronger with flat spokes, and more in proportion with the carriage or cart upon which it is used.

Folding Steel Building Bracket.

The Berlin Construction Company, Berlin, Conn., is putting on the market a folding steel building bracket, recently patented, as shown herewith. It is made entirely of steel angle and rivets. There are no bolts and only one nut, the hand nut, for the purpose of attaching the bracket to the building. The manufacturer states that the bracket cannot possibly fold up when in use, inasmuch as the outer brace is riveted at both ends, while the inner brace is riveted at the upper end and locks over the head of a rivet at the lower end, bearing upon the inner side of the bracket. In setting the bracket up the bolt, which is riveted at the inner end of the upper arm, is passed through a hole in the inner side of the bracket and then through the studding and locked tightly by means of a hand nut. Another advantage is that the outer edge of the upper arm is bent at a right angle, thus preventing the plank of the staging from slipping off the bracket, as has occurred with wooden brackets. The company states that the bracket is practically indestructible and

folds so compactly that enough brackets for a job can be carried in a light wagon, while half a dozen can be

*Folding Steel Building Bracket.*

carried under a man's arm. It is said that it costs no more than a wooden bracket and weighs about 15 lb.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—		Y gal.	lb.
	gal.		
Linseed, Western, Raw.....	60 @ 61	China Clay, Imported, 3/4 ton 11.50@18.00	13 @ 15
State, Raw.....	60 @ 61	Cobalt, Oxide.....	11 @ 11
City, Raw.....	61 @ 62	Whiting, Commercial	12 @ 16
Boiled, 1/2 gal. advance on Raw.	60 @ 61	Gilders.....	10 @ 24
Raw, Calcutta, in bbls.....	75 @ .	Ex. Gilders	10 @ 16
Lard, Prime Winter.....	82 @ 83	Putty, Commercial— 3/4 gal.	100 @ 100
Extra No. 1.....	52 @ 53	In bladders.....	\$1.70@2.00
No. 1.....	47 @ 50	In bbls., or tubs, 100 lb.....	1.20@1.50
Cotton-seed, Crude, f.o.b. mill.....	4.67@4.73	In 1 lb to 5 lb tins.....	2.65@3.25
Summer, Yellow, prime.....	5.65@5.70	In 12½ to 50 lb tins.....	1.50@1.90
Summer, White.....	6.00@6.10		
Yellow, Winter.....	6.00@6.12		
Tallow, Acidless.....	56 @ .		
Menhaden, Brown, Strained.....	53 @ .		
Northern, Crude.....	24 @ 25		
Southern.....	24 @ 25		
Light Strained.....	33 @ .		
Bleached Winter.....	36 @ .		
Extra Bleached Winter.....	39 @ .		
Cocconut, Ceylon.....	7.15@7.20		
Cochin.....	3/4 lb 7/8@7/8		
Cod, Domestic, Prime.....	38 @ .		
Newfoundland.....	40 @ .		
Red Elaine.....	43 @ 47		
Saponified.....	3/4 lb 5%@6%		
Olive, Yellow.....	1.40@1.50		
Neatsfoot, Prime.....	55 @ 56		
Palm, Lagos.....	3/4 lb 5.55@5.60		
Mineral Oils—			
Black, 29 gravity, 25@30 cold test.....	3/4 gal.		
29 gravity, 15 cold test.....	12 1/2@13	Bleached, Commercial.....	16 @ 16 1/2
Summer.....	12 @ 12	Bone Dry.....	20 @ 21
Cylinder, light filtered.....	20 @ 20	Button.....	20 @ 20
Dark, filtered.....	17 1/2@18	Diamond I.....	27 @ 28
Paraffine, 903-907 sp. gravity.....	14 @ 14	Fine Orange.....	20 @ 21
903 sp. gravity.....	13 @ 13	A. C. Garnet.....	15 1/2@16
883 sp. gravity.....	10 1/2@11	Light Orange.....	17 @ 19
Red.....	13 @ 13	Kola Button.....	10 @ 11
		D. C.	27 @ 28
		Octagon B.....	22 @ 23
		T. N.	14 @ 15
		V. S. O.	25 @ 26
Miscellaneous—			
Barvites:			
White, Foreign.....	3/4 ton \$18.50@20.50	Colors in Oil—	lb.
Amer. floated.....	3/4 ton 17.00@18.00	Black, Lampblack.....	12 @ 14
Off color.....	3/4 ton 12.50@15.00	Blue, Chinese.....	36 @ 46
Chalk in bulk.....	3.00@3.40	Blue, Prussian.....	32 @ 36

White and Red, Lead &c.—		lb.
Lead, English white, in Oil, 10%@10%		
Lead, American White:		
Dry and in Oil, 100, 250 and 500 lb kegs.....		6%
Dry and in Oil, 25 and 50 lb kegs.....		7
Dry and in Oil, 12 1/2 lb kegs.....		7 1/2
In Oil, 25 lb tin pails.....		7 1/2
In Oil, 12 1/2 lb tin pails.....		7 1/2
In Oil, 1, 2, 3 and 5 lb tin cans, ass't.....		8 1/2
Red Lead and Litharge:		
In 100 lb kegs.....		7
In 25 and 50 lb kegs.....		7 1/2
In 12 1/2 lb kegs.....		7 1/2
In lots of less than 500 lbs, 1/2 lb advance over 500 lbs, or above prices of 100 lbs, 10%@15.00		7 1/2
Red Lead and Litharge, Red.		
Lead, American: Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.		
Zinc, Dry—		
American, dry.....		5 1/2@ 5%
Red Seal (French process).....		6 1/2@ 7
Green Seal.....		7 1/2@ 7 1/2
German Red Seal (French process).....		7 1/2@ 7 1/2
Green Seal.....		7 1/2@ 8
White Seal.....		8 1/2@ 9
French, Red Seal.....		8 1/2@ 8 1/2
Green Seal.....		10%@10%
Dry Colors—		
Black, Carbon.....		7 @ 10
Black Drop, American.....		3 1/2@ 8

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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Current Hardware Prices.

General Goods.—Goods which are made by more than one manufacturer are printed in *Italics*. The prices named represent those obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are usually given to larger buyers.

Special Goods.—Quotations printed in small type (Roman) relate to goods of particular manufacturers, who request the publication of the prices named and are responsible for their correctness. They usually represent the prices to the small trade, lower prices being generally obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33 1/4 @ 33 1/4 & 10% signifies that the price of the goods in question ranges from 33 1/4 per cent. discount to 33 1/4 and 10 per cent. discount.

Adjusters, Blind—

Columbian and Domestic.....	33 1/4%
North's.....	10%
Upon's Patent, per gro., \$2.50.....	10%
Zimmerman's—See Fasteners, Blind.	

Window Stop—

Ives' Patent.....	10%
Ives' Stop Bead Screws and Washers.....	10%
Taplin's Perfection.....	10%

Ammunition—See Caps, Cartridges, Shells, &c.

Anti-Rattlers—

Fernald Mfg. Co., Burton Anti-Rattlers, per doz. pairs, Nos. 1, 2, \$0.75; 2, \$0.60; 4, \$1.00; 5, \$0.50; 7, \$0.40; 10, \$0.30; 12, \$0.25; 14, \$0.20; 16, \$0.15; 18, \$0.10; 20, \$0.05; 22, \$0.03; 24, \$0.02; 26, \$0.01.	
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Anvils—American—

Eagle Anvils.....	per lb. @ 9 1/2¢
Hay-Budden, Wrought.....	9 1/2¢ @ 9 1/2¢
Trenton.....	per lb. 9 1/2¢ @ 9 1/2¢

Imported—

Swedish Solid Steel Paragon, 75 lb.....	10¢ @ 10¢
Swedish Solid Steel Stoco, Superior, 100 lb.....	10¢ @ 10¢
1 star Wright & Sons, 75 lb. \$4 to \$19 lb. 11¢ to \$50 to 600 lb. 11 1/2¢	
Anvil, Vice and Drill—	
Millers Falls Co., \$18.00.....	15¢ & 10%

Apple Parers—See Parers, Apple, &c.

Aprons, Blacksmiths'—

Livingston Nail Co.....	10%
Augers and Bits—	

Com. Double Spur.....	30%
Jennings' Ptn., Bright, 65¢ @ 70¢	70%
Black Lip or Blued, 65¢ @ 65¢	
Boring Mach. Augers.....	70%
Car Bits, 12-in. twist.....	40¢ @ 10¢
Ford's Auger and Car Bits.....	40¢ & 5¢
Ft. Washington Auger Co., Concord's.....	35¢
Forster Pat. Auger Bits.....	35¢
C. E. Jennings & Co.: No. 10 ext. lip. R. Jennings' list, 25¢ & 7 1/2¢	
No. 20, R. Jennings' list.....	50¢
Russell Jennings'.....	25¢ & 13 1/2¢
L'Hommedieu Car Bits.....	15¢
Mayhew's Countersink Bits.....	45¢
Pugh's Black.....	20¢
Pugh's Jennings' Pattern.....	35¢
Snell's Auger Bits.....	60¢
Snell's Bell Hangers' Bits.....	60¢
Snell's Car Bits, 12-in. twist.....	60¢
Snell's King Auger Bits.....	50¢
Snell's Star Auger Bits.....	50¢ & 10¢
Swan's Jennings' Pattern.....	50¢
Wright's Jennings' Bits.....	50¢

Bit Stock Drills—

See Drills, Twist.	
Expansive Bits—	

Clark's Pattern, No. 1, per doz., \$26; No. 2, \$15.....	60¢ & 10¢
Ford's, Clark's Pattern, \$0.65 @ 60¢	10¢
C. E. Jennings & Co., Steer's Pat., 25¢	
Lavigne Pat., small size, \$18.00; large size, \$26.00.....	60¢ & 10¢
Swan's.....	60¢

Gimlet Bits—

per pro.	
Common Dbl. Cut.....	\$3.00 @ \$2.25
German Pattern, Nos. 1 to 10, \$1.75; 11 to 13, \$5.75	
Hollow Augers—	
Bonney Pat., per doz. \$5.50 @ \$6.00	

Ames.....	20¢ & 10¢
Universal.....	20¢

Ship Augers and Bits—

Ship Augers.....	40¢ @ 10¢
Ford's, C. E. Jennings & Co.: L'Hommedieu's.....	35¢ & 5¢

Watrous'.....	33¢ & 7 1/2¢
Snell's.....	45¢

Awl Hafts—See Handles, Mechanics' Tool.

Awls—

Brad Awls: Handled.....	gro. \$2.75 @ \$3.00
Unhandled, Shlder'd.....	gro. \$2.50 @ \$2.66
Unhandled, Patent.....	gro. \$2.00 @ \$2.04

Peg Awls:

Unhandled, Patent.....	gro. \$1.00 @ \$1.04
Unhandled, Shlder'd.....	gro. \$1.50 @ \$1.70

Scratch Awls:

Handled, Com.	gro. \$3.50 @ \$4.00
Handled, Socket, gro. \$11.50 @ \$12.00	

Elmore Tool Mfg. Co.: Tinner's and Brad Awls.....	55¢ & 10¢
Scratch Awls.....	50¢

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

Single Bit, base weights: Per doz.

First Quality.....

\$1.75 @ \$1.50

Second Quality.....

\$1.25 @ \$1.40

Double Bit, base weights:

First Quality.....

\$1.00 @ \$1.75

Second Quality.....

\$1.50 @ \$1.75

See Grease, Axe.

Axes—

Iron or Steel.

Concord, Loose Collar.....

\$1.40 @ \$1.25

Concord, Solid Collar.....

\$1.60 @ \$1.45

No. 1 Common, Loose.....

\$1.40 @ \$1.45

No. 1½ Common, New Style.....

\$1.40 @ \$1.45

No. 2 Solid Collar.....

\$1.40 @ \$1.45

Half Patent:

Nos. 7, 8, 11 and 12.....

70¢ @ 10¢

Nos. 13 to 14.....

70¢ @ 10¢

Nos. 15 to 18.....

70¢ @ 10¢ @ 10¢

Nos. 19 to 22.....

70¢ @ 10¢ @ 10¢

See Boxes, Axles.

Boxes, Axles—

Common and Concord, not turned.....

lb. 5¢ @ 6¢

Common and Concord, turned.....

lb. 6¢ @ 7¢

Half Patent.....

lb. 9¢ @ 10¢

See Boxes, Axles.

Bait—

Fishing—

Hendryx:

A Bait.....

20¢

B Bait.....

25¢

Competitor Bait.....

20¢ & 5¢

See Boxes, Axles.

Balances—

Sash—

Caldwell new list.....

50¢ & 10¢

Pullman.....

50¢ & 10¢

Spring—

Chatillon's:

Light Spring, Balances.....

\$1.50 & 10¢

Straight Balances.....

40¢ & 10¢

Circular Balances.....

50¢ & 10¢

Large Dial.....

30¢

See Barb Wire, Barb.

Bars—

Crow—

Steel Croucbars, 10 to 40 lb.

per lb., 2 1/2¢ @ 2 1/4¢

Towel—

No. 10 Ideal, Nickel Plate, per gro. \$1.50

Beam, Scale—

Scale Beams.....

40¢ & 10¢

Chattillon's No. 1.....

30¢

Chattillon's No. 2.....

40¢

Chatillon's No. 3.....

40¢

Chatillon's No. 4.....

60¢

See Boxes, Axles.

Beaters, Carpet—

Holt-Lyon Co.:

No. 10, per doz., \$5. Jap'd, \$10.00;

No. A, Jap'd, \$1.15; No. B, Jap'd, \$1.15;

No. C, Jap'd, \$1.65; No. D, Jap'd, \$1.65;

Lyon, Jap'd, per doz., No. 2, \$1.35;

Improved Holt-Lyon, per doz., \$10.00;

No. 75, \$10.00; No. 100, \$7.00;

No. 102, Tin'd, \$8.50; No. 150, \$10.00;

Hotel, \$1.00; No. 132, Hotel Tin'd, \$1.00;

No. 200, Tumbler, \$1.00;

No. 300, Mammoth, per doz., \$25.00.

See Boxes, Axles.

Belows—

Bellows—

Cover—

Inch.....

Cages, Bird—

Hendryx Brass: Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 900, 30%
Hendryx Bronze: Series 700, 800, 30%
Hendryx Enamelled, 35%

Calipers—See *Compasses*, *Calks, Toe and Heel*—

Bulst, 1 prong, per 100 lb., \$3.50 @ \$3.85

Sharp, 1 prong, per 100 lb., \$1.00 @ \$3.85

Burke's, 1 pg. Blunt Toe, 35¢; 2 pg. Blunt Toe, 45¢; 1 pg. Sharp Toe, 45¢; 2 pg. Sharp, 45¢; Blunt Heel, 45¢; Sharp Heel, 45¢

Lautier, Blunt, 4@45¢; Sharp, 4@45¢

Perkins', Blunt, 3 lb., 3.65¢; Sharp, 4.15¢

Can Openers—

See *Openers, Can*.

Caps, Percussion—

Eley's E. B. 50¢ @ \$5¢
G. D. per M. 34 @ \$3¢
F. L. per M. 40 @ \$4¢
G. E. per M. 48 @ \$6¢
Musket per M. 62 @ \$6¢

Primers—

Berdan Primers, \$2 per M. 20¢ @ 5%

Primer Shells and Bullets, 15¢ @ 10%

All other primers per M. \$1.52 @ 60%

Carpet Stretchers—

See *Stretchers, Carpet*.

Cartridges—

Blank Cartridges:
32 C. F., \$5.50 10¢ @ 5%
38 C. F., \$7.00 10¢ @ 5%
22 cal. Rim, \$1.50 10¢ @ 5%
32 cal. Rim, \$2.75 10¢ @ 5%
B. B. Caps, Con. Ball, Stegd. \$1.90
B. B. Caps, Round Ball, \$1.49
Central Fire 25¢
Target and Sporting Rifle, 15¢ @ 2%
Primed Shells and Bullets, 15¢ @ 10%
Rim Fire, Sporting 50¢
Rim Fire, Military 15¢ @ 5%

Casters—

Bed 65¢ @ 10¢ @ 70%
Plate 60 @ \$6 @ 5%
Philadelphia 70¢ @ 10¢ @ 75%
Acme, Ball Bearing 35¢
Gem (Roller Bearing) 70¢
Steel Gem (Roller Bearing) 70¢
Standard Ball Bearing 45¢
Yale (Double Wheel) low list, 40 @ 10%

Cattle Leaders—

See *Leaders, Cattle*.

Chain, Proof Coil—

American Coil, Straight Link:
3-16 1/4 5-16 3/8 1/2 5/8
\$7.45 4.80 3.85 3.25 3.10 3.00
5/8-1 1/8 to 1 1/4 inch, 32.90 3.00
German Coil 70¢ @ 5%
German Pattern Coil:
6-0 to 1 70¢ @ 10¢ @ 5%
2 and 3 60¢ @ 10¢ @ 10@ 70¢
4, 5 and 6 50¢ @ 10¢ @ 5@ 65%

Halter—

Halter Chains 60¢ @ 60¢ @ 10%
German Pattern Halter Chains, list July 24, '97 70¢ @ 5%
Covert Mfg. Co.:
Halter 35¢ @ 5%

Cow Ties—

See *Halters and Ties*.

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6 1/2-6-3, Straight, with ring, \$26.00
6 1/2-6-2, Straight, with ring, \$27.00
6 1/2-8-2, Straight, with ring, \$30.00
6 1/2-10-2, Straight, with ring, \$35.00

NOTE.—Add 2¢ per pair for Hooks
Twist Traces: add per pair for Nos. 2
and 3, 2¢; No. 1, 3¢; No. 6, 4¢ to price of
Straight Link.

Eastern Standard Traces, Wag-
on Chain, dc. 70¢ @ 10¢ @ %

Miscellaneous—

Jack Chain:
Iron 60¢ @ 10¢ @ 5@ 10%
Brass 65¢
Safety and Plumbers' Chats, 75¢
Gal. Pump Chain 10, 4¢ @ 5%
Bridgeport Chain Co.:
Triumph Halter and Coll., 35 & 2 1/2 @ 40%
Triumph Dog 9 @ 10 & 60%
Brown Halter and Coll., 1 1/2 @ 50 & 5%

Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stal-
lion 40%
Oneida Community:

American Halter, Dog and Kennel
Chains 35 & 2 1/2 @ 40%
Niagara Dog Leads and Kennel
Chains 45 @ 50 & 5%

Wire Goods Co.:
Dog Chain 70%
Universal Dbl.-Jointed Chain 70%

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain 60%
Pullman:
Bronze Chain, 60%; Steel Chain,
Coppered 60 @ 10%
Sash Chain Attachments, per set, 8¢
Aluminio Sash Ribbon, 10 ft., \$2.00 @ 5%
Sash Ribbon Attachments, per set, 8¢

Chalk—

Carpenters' Blue gro., 50¢ @ 55¢
Carpenters' Red gro., 50¢ @ 55¢
Carpenters' White gro., 50¢ @ 45¢

Checks, Door—

Bardsley's 15%
Pullman, per gro. 50¢ @ 60¢
Russwin 50¢ @ 60¢

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools 55%
Youths' Chests, with Tools 49%
Gentlemen's Chests, with Tools 39%
Farmers' Carpenters, etc., Chests,
with Tools 29%
Machinists' and Pipe Fitters'
Chests, Empty 15%
Tool Cabinets 15%
C. E. Jennings & Co.'s Machinists'
Tool Chests 7 1/2%

Chisels—

Socket Framing and Firmer
Standard List, 80¢ @ 80¢ @ 10%
Buck Bros. 30%
C. E. Jennings & Co.:
Socket Firmer No. 10 25 & 1/2%
Socket Framing No. 13 25 & 1/2%
Swan's 66¢ @ 70%
L. & J. I. White & Co. 30 @ 30 & 5%

Tanged—

Tanged Firmer 30¢ @ 35%
Buck Bros. 30%
C. E. Jennings & Co., Nos. 191, 181, 25%
L. & J. I. White Co. 25 & 5%

Cold—

lb. Cold Chisels, good quality, 13 @ 15¢

Cold Chisels, fair quality, 11 @ 12¢

Cold Chisels, ordinary, 9 @ 10¢

Elmoro Tool Mfg. Co.:
Cold Chisels 50 & 5%

Chucks—

Almond Drill Chucks 35%
Almond Turret Six-Tool Chuck 40%
Beach Pat, each, \$8.00 35 & 1/2%
Blacksmiths 25%
Cincinnati Chuck Co.:
Independent 4-jaw Reversible 35%
Empire 25%
Jacobs Drill Chucks 35%
Pratt's Positive Drive 25%
Skinner Lathe Chucks:
Independent 35%
Universal, Reversible Jaws 35%
Universal, Com. Style Jaws 40%
Combination, Reversible Jaws 35%
Combination, Com. Style Jaws 40%
Round Body or Box Body, 2 Chus.
Jaws 25%
Geared Scroll Chucks 25%
Drill Chucks:
New Model, 25%; Geared Pat-
tern, 25%; Skinner Patent, 25%
Positive Drive 40%
Planer Chucks 20%
Standard 45%
Drill Press Vises 33%
Face Plate Jaws 33%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6,
7, 8 and 17, 40%; No. 21, 35%
Scroll Combinations, Nos. 83 and
84 30%
Geared Scroll, Nos. 33, 34 and 35, 25%
Independent Iron, Nos. 18 and 318, 35%
Independent Steel, No. 84 25%
Union Drill, Nos. 600, 60, 100, 101,
102, 103, 104 35%
Union Czar Drill 25%
Universal, 11, 12, 16, 17, 13, 14, 15, 40%
Universal No. 42 35%
Iron Face Plate Jaws, Nos. 28, 30,
38 and 50 35%
Steel Face Plate Jaws, Nos. 70 and
72 30%
Westcott Patent Chucks:
Lathe Chucks 50%
Large Giant Auxiliary Drill 50%
Little Giant Double Grip Drill 50%
Little Giant Drill, Improved 50%
Oneida Drill 50%
Scroll Combination Lathe 50%
Whitney Mfg. Co.:
National Drill 25%

Clamps—

Carriage Makers', Star, P. S. & W.
Co. 50%
Reely, Parallel 33 & 1/2%
Hammer & Co.:
Adjustable 20 & 5%

Carriage Makers' H. P. Screw, 40¢ @ 5%
Myers' Hay Rack 50%
Lineman's Swedish Neverturn 45%
Saw Clamps, see Vises, Saw Fliers

Cleaners, Drain—

Iwan's Champion, Adjustable 50%
Iwan's Champion, Stationary 40%
Grain 50%
Crayons

White Round Crayons, Cases, 100
gro., \$8.00, \$8.50, \$9.00 and \$10.00
according to grade.

Zehnlecker's Number: 1 gro.
White and Purple, Indelible 57.50
Blue, Red, Green, Yellow and
Terra Cotta 65.50. Black 45.50
Giant Lumber, 5/4 in. x 15-16 in.
round, all colors, \$12.00. Indel-
ibles, \$14.00. Black \$10.00
Genuine Soapstone, Men's Workers,
5 in. x 3 1/2 in. Round, \$2.50; 5 in. x
3 1/2 in. Square, \$1.75; 5 1/2 x 3 1/2 in.
\$2.50; 5 1/2 x 3 1/2 in. \$3.00
Suremark, Black, \$2.25; Blue, Red
and Yellow \$2.50

Crooks, Shepherds'—

American Fork & Hoe Co.:
Star, P. doz., Socket \$1.00;
Shank, P. doz., X 7/8, \$3.50; Shank,
X 8 \$3.75

Cleavers, Butchers'—

Foster Bros. 30%
Fayette R. Plumb 30%
L. & J. I. White Co. 30%

Clippers, Horse and Sheep—

Chicago Flexible Shaft Co.:
1902 Chicago Horse, each, \$10.75
20th Century Horse, each, \$5.00
Lightning Bolt Horse, each, \$15.00
Chicago Bolt Horse, each, \$20.00
Stewart's Enclosed Gear Ball
Bearing Horse, each, \$7.50
Stewart's New Model Sheep
Shearing Machine, each, \$12.75
Stewart Enclosed Gear Shear-
ing Machine, No. 8, each, \$9.75

Clips, Axle—

Regular Styles 80¢ @ 80¢ @ 10%

Cloth and Netting, wire—

—See *Wire, dc.*

Cocks, Brass—

Hardware list:

Plain Bibbs, Globe, Kerosene,
Racking, Liquor, Bottling,
dc 75%

Compression Bibbs 70%

Coffee Mills—

—See *Mills, Coffee*.

Collars, Dog—

Nickel Chain, Walter B. Stevens &
Son's List, 10¢

Leather, Walter B. Stevens & Son's
List 40%

Check, Door—

Bardsley's 15%

Pullman, per gro. 50¢ @ 60¢

Russwin 50¢ @ 60¢

Compasses, Dividers, &c.—

Ordinary Goods 75¢ @ 75¢ @ 5%

Conductor Pipe—

L. C. L. to Dealers: Gal. Steel, Charcoal, Copper.

Northeastern: 70¢ @ 10¢ @ % 50¢ @ 10¢ @ % 50¢ @ 10¢ @ %

Eastern: 75¢ @ % 50¢ @ 10¢ @ % 50¢ @ 10¢ @ %

Central: 75¢ @ % 60% 50¢ @ 10¢ @ %

Northwestern: 75¢ @ % 60% 50¢ @ 10¢ @ %

Western: 70¢ @ % 60% 50¢ @ 10¢ @ %

Southwestern: 70¢ @ % 50¢ @ 10¢ @ % 50¢ @ 5%

Terms, 60 days: 2¢ cash 10 days. Factory shipments generally delivered.

See also *Eave Troughs*.

Cold—

lb. Cold Chisels, good quality, 13 @ 15¢

Cold Chisels, fair quality, 11 @ 12¢

Cold Chisels, ordinary, 9 @ 10¢

Swan's 66¢ @ 70%

L. & J. I. White & Co. 50 & 5%

Tanged 30 & 5%

Elmoro Tool Mfg. Co.: Cold Chisels 50 & 5%

Elmoro 50 & 5%

Hartford 66¢ @ 70% 50 & 5%

Indestructible 50 & 5%

Standard Neverturn 66¢ @ 70% 50 & 5%

Star 75¢ @ 70% 50 & 5%

8-cwt. Drive Bits 25¢

Fraz. H. H. Die Sets, No. 3, \$12.50

Ford's Brake Screw Drivers, 3/4-in., 4-in., 5-in., 6-in.

Gay's Double Action Ratchet 35¢

Goodell's Auto. 65¢ @ 60 & 5%

Mayhew's Black Handle 40%

Mayhew's Monarch 40%

Miller's Falls, P. doz. Nos. 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484,

10-lb. cans, 6 $\frac{1}{2}$ ¢ 7 ¢ 8 ¢
10-lb. cans, less than 10. 10 ¢ 10 ¢ 8 ¢
Less quantity, 10 ¢ 10 ¢ 8 ¢
NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extensions, Bit—

Ford's Auger Bit Extensions... 49&5%

Extractors, Lemon Juice—

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's Jap'd and Galv., 50 &

5%; Bronze and Plated, 50%

Walling's 50%

Upson's Patent, 40%

Cord and Weight—

Ives, 1/2 gro., \$1.08. 10%

Titan, 1/2 gro., \$0.66. 10%

Corrugated—

Acme Corrugated Fasteners. 10%

Faucets—

Cork Lined. 50&10@60%

Metallic Key, Leather Lined, 60&10@70%

Red Cedar. 40&5@40&10@5%

Petroleum. 70&10@70%

B. & L. B. Co.: Metal Key. 60&10%

Star. 60%

West Lock. 50&10

John Sommer's Peerless Tin Key. 40

John Sommer's Boss Tin Key. 40

John Sommer's Victor Mtl. Key. 50&10

John Sommer's Duplex Metal Key. 40

John Sommer's Diamond Lock. 40

John Sommer's I. X. L. Cork Lined. 50&10

John Sommer's Reliable Cork Lined. 50&10

John Sommer's Chicago Cork Lined. 60

John Sommer's O. K. Cork Lined. 50

John Sommer's No Brand, Cedar. 50

John Sommer's Perfection, Cedar. 40

Self Measuring:

Enterprise, Self Measuring and Pump, 1/2 doz., \$36.00. 40&10%

Lane's, 1/2 doz., \$36.00. 40&10%

National Measuring, 1/2 doz., \$36.40&10%

Feloe Plates—

See Plates, Feloe.

Files—Domestic—

List Nov. 1, 1899.

Best Brands. 70&10@75&10%

Standard Brands. 75&10@80%

Lower Grade. 75&10@60@80@10%

Dixon's Superline. 70

Gold Medal. 70

McCaffrey's American Standard. 60&10@10%

Imported—

Stubs' Tapers, Stubs' list, July 24, '97. 33 1/2 @40%

Fixtures, Fire Door—

Richards Mfg. Co.:

Universal, No. 103; Special, No. 104. \$3.75

Fusible Links, No. 96. 50%

Expansion Bolts, No. 107. 60&10%

Grindstone—

Net Prices:

Inch. 15 17 19 21

Per doz. \$3.60 3.85 4.15 4.65

Peck, Stow & Wilcox Co.:

Inch. 15 17 19 21 21

\$4.00 4.40 4.75 5.50 6.50. 30%

Reading Hardware Co. 60%

Fodder Squeezers—

See Compressors.

Forks—

American Fork & Hoe Co.:

Iowa Dig-Ezy Potato. 70&5%

Hay, Regular, 3-time. 45&20@12½%

Hay, Regular, 4-time. 60&7@12½%

Champion, Hay. 60&12½

Acme, Hay. 60&20

Manure, Regular, 4-time. 65&5

Manure, Regular, 5 and 6 time. 70

Champion, Manure. 65&5

Columbia, Manure. 70

Acme, 4-time. 60&10&5

Round Shoulder Header, 4-time. 65

Champion, Header. 65

Dakota, Header. 65

Kansas Header. 65

Wood, Barley. 35&5

Steel, Barley. 65&5

Columbia, Spading. 70&7@8½%

Frames—Wood Saw—

White, S'g't Bar, per doz. 75@80¢

Red, S'g't Bar, per doz. \$1.00@1.25

Red, Dbl. Brace, per doz. \$1.40@1.50

Freezers, Ice Cream—

Qt. 1 2 3 4 5 6

Each. \$1.25 \$1.60 \$1.90 \$2.20 \$2.80

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.**Fuse—Per 1000 Feet.**

Hemp. 2.75

Cotton. 3.20

Waterproof Sgl. Taped. 3.65

Waterproof Dbl. Taped. 4.40

Waterproof Tpl. Taped. 5.15

Gates, Molasses and Oil—

Stebbins' Pattern. 80@80½%

Gauges—

Marking, Mortise, &c. 50@50&10%

Chapin-Stephens Co.:

Marking, Mortise, &c. 50&50@10%

Dixon's Marking, Mortise, &c. 50&10@10%

Wire, Brown & Sharpe's. 33 1/2

Wire, Morse's. 25

Wire, P. S. & W. Co. 33 1/2

Gimlets—Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1. \$2.00; 2, \$2.30
Spike, Metal, No. 1. \$4.00; 2, \$4.30
Nail, Wood Handled, No. 1. \$2.30; 2, \$2.60
Spike, Wood Handled, No. 1. \$4.30; 2, \$4.60

Glass, American Window—
See Trade Report.

Glasses, Level—

Chapin-Stephens Co. 65@65&10%

Dixon & Sons. 60@10%

Elwell's. 50%

Glue, Liquid Fish—

Bottles or Cans, with Brush, 25&10@50%

Elwell's. 50%

Grease, Axle—

Common Grade, 1/2 gro. \$6.00@8.60

Dixon's Everlasting, 10-lb. pails, ea. 85¢; in boxes, 1/2 doz., 1 lb. \$1.20; 2 lb. 2.00

Helmet Hard Oil. 25%

Griddles, Soapstone—

Pike Mfg. Co. 33@33&10%

Grinders—

Pike Mfg. Co.:

Hand and Foot Power, Pyko Nos. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power). 33 1/2%

Mower Knife and Tool, \$5.00@40&10%

Royal Mfg. Co.:

Hand and Foot Power, each, No. 91, \$1.75; 1A, \$1.50; 19, \$1.20; 28, \$1.00; 37, \$0.80; 46, \$0.60; 55, \$0.50; 64, \$0.40; 73, \$0.30; 82, \$0.25; 91, \$0.20; 100, \$0.15; 109, \$0.10; 118, \$0.08; 127, \$0.06; 136, \$0.05; 145, \$0.04; 154, \$0.03; 163, \$0.02; 172, \$0.01

Sickle Grinders, each, No. 29, \$0.50; 20A, \$0.40; 20A Combined, \$0.50; Disc Grinders, each, \$2.50. 40%

Grindstones—

Pike Mfg. Co.:

Improved Family Grindstones, 1/2 inch, 1/2 doz., \$2.00. 33 1/2%

Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted. 40%

Grips, Nipple—

Perfect Nipple Grips. 40&10&2%

Halters and Ties—

Cow Ties. 70@10@—%

Bridgeport Chain Co.:

Triumph Coil and Halters, 35&21@40%

Brown Cow Ties. 45@50&5%

Brown Tie Outs. 45@50&5%

Curt Mfg. Co.:

Jute Ropes. 30&2%

Sisal Ropes. 35

Cotton Ropes. 20

Hemp Ropes. 45

Oneida Community:

Am. Coil and Halters. 40@40&5%

Am. Cow Ties. 45@50&5%

Niagara Cow Ties. 45@50@10&5%

Hammers—**Handled Hammers—**

Heller's Machinists. 55@10@5&10@5%

Heller's Farriers. 10@40@10&5%

Leek, Stow & Wilcox Co.:

Crucible Steel. 40@10@5%

Frost, Stow & Wilcox Co.:

Riveting. 40@10@5%

Machinists'. 65@5@5%

Blacksmiths'. 50@5

Elmore Shoemakers' Hammers. 75

Fayette, R. Plumb:

A. E. Nail. 40@2½@40@12½%

Eng. and B. S. Hand. 50@10@60@60&5%

Machinists' Hammers. 60@10&5

Rivet and Timmers'. 40@7½@40@12½@5%

Riveter Magnetic Tack, 1/2 gro. \$1.75

Heavy Hammers and Sledges—

Under 3 lb., per lb., 50¢. 80@10%

Over 3 lb., per lb., 40¢. 80@10@10%

Over 5 lb., per lb., 30¢. 80@10@10%

Over 5 lb., per lb., 20¢. 80@10@10%

Handles—**Agricultural Tool Handles—**

Axe, Pick, dc. 60@10@60@10@5%

Hoe, Rake, dc. 40

Fork, Shovel, Spade, dc. 40

Long Handles. 40

D Handles. 40

Cross-Cut Saw Handles—

Atkins'. 40

Dixon's Handles and Saw Tabs. 45

Mechanics' Tool Handles—

Auger, assorted. \$3.00@3.50

Brad Axle. \$1.65@1.75

Chisel Handles, Ass'd, per gro.:

Tanged Firmer, Apple, \$2.40@

\$2.65; Hickory. 1.60@2.40

Socket Firming, Apple, \$1.75@

\$1.95; Hickory. 1.60@1.75

Socket Framing, Hickory, \$1.60@1.75

File, assorted. \$1.30@\$1.40

Hammer, Hatchet, dc. 60@60@10@5%

Hand Saw, Varnished, doz. 80¢

8¢; Not Varnished. 65@75¢

Plane Handles:

Jack, doz., 8¢; Fore, doz. 45¢

Chapin-Stephens Co.:

Carving Tool. 30@30@10%

File and Awl. 60@60@10%

Saw and Plane. 30@30@10%

Screw Driver. 30@30@10%

Miller's Falls Adj. and Ratchet Anger Handles. 15@10@10

Nicholson Simplicity File Handle. 10¢

J. L. Osgood: Indestructible File and Tool, 1/2 gro., No. 1, \$2.00; No. 2, \$2.50; No. 3, \$3.00; No. 4, \$3.50; No. 5, \$4.00; No. 6, \$4.50; No. 7, \$5.00; No. 8, \$5.50; No. 9, \$6.00; No. 10, \$6.50; No. 11, \$7.00.

Heaters, Carriage—

Clark, No. 5, \$1.25; No. 5B, \$1.50; No. 6, \$1.75; No. 7, \$2.00; No. 7D, \$2.25; No. 8E, \$2.50; No. 9, \$3.00; No. 10, \$3.50; No. 11, \$4.00; No. 12, \$4.50; No. 13, \$5.00; No. 14, \$5.50; No. 15, \$6.00; No. 16, \$6.50; No. 17, \$7.00; No. 18, \$7.

Hoses—Eye		
<i>Scovil and Oval Pattern,</i> 60&10@60&10@10%		
<i>Grub, list Feb. 23, 1899,</i>		
D. & H. Scovil..... Am. Fork & Hoe Co. (Scovil Pattern).....	27½% 60&5%	
Handled—		
Cronk's Wedding, No. 1,\$2.00; No. 2,\$2.50		
Star Double Bit.....	\$2.50	
American Fork & Hoe Co.:		
Regular, Cotton..... Crescent, Cultivator.....	75&10@5&10% 75&2½%	
Mattock, Senior..... Mattock, Junior.....	70% 70%	
Sprouting..... Tobacco, Harper's.....	50% 66½&15½@10%	
Warren..... Ivanhoe.....	55&10@10&10% 65&5@10%	
Cultivator, B B 6..... Cultivator, B B 6½.....	70&10@10&5% 70&10@10&5%	
Weeding, Acme..... Scuffle, Lightning.....	72½@10&10% 60&5%	
Hoisting Apparatus—		
See <i>Machines, Hoisting.</i>		
Holders—Bit—		
Angular, P doz. \$2.00.....	45&10%	
Door—		
Bardsley's, Iron, 40%; Brass and Bronze..... Empire..... Pullman..... Richards' Mfg. Co.: No. 117, Ever-ready, 40%; Nos. 118, 119, Super Grip..... Superior.....	25% 50% 25% 40% 40% 33%@40%	
File and Tool—		
Nicholson File Holders and File Handles.....	33%@40%	
Fruit Jar—		
Triumph Fruit Jar Holder, P gross, \$18.00; P doz.	\$2.00	
Trace and Rein—		
Fernald Double Trace Holder, P doz., pairs..... Daah Rein Holder, P doz.	1.25 1.25	
Hones—Razor—		
Pike Mfg. Co., Belgian and Swaty, 50%; German.....	33%@40%	
Hooks—Cast Iron—		
Bird Cage, Reading..... Clothes Line, Reading List..... Coat and Hat, Reading..... Coat and Hat, Wrightsville..... Harness, Reading List.....	40% 40% 45&20% 60&5% 40%	
Wire—		
Belt, Nos. 1 to 15....75@10@80% Wire C. & H. Hooks....80@80@10% Bradley Metal Clasp Wire, Coat and Hat, 75&10@80%: Ceiling, 75&10@80% Columbian Hdw. Co., Gem....75&10% Parker Wire Goods Co., King, 75&10% Wire Goods Co.:		
Acme, 60&10%; Chief, 70&10%; Crown, 75%; Czar, 65&10%; Brace, 75%; Czar Harness, 50%; Ceiling, 75%.		
Wrought Iron—		
Box, 6 in., per doz., \$0.90; 8 in., \$1.15.		
Cotton.....	doz. \$1.25@31.50	
Wrought Staples, Hooks, &c.—		
See Wrought Goods.		
Miscellaneous—		
Hooks, Bench, see Steps, Bench. Bush, Light, doz., \$6.20; Medium, \$6.75; Heavy, \$7.65		
Grass, best, all sizes, per doz., \$2.75@3.00		
Grass, common grades, all sizes, per doz.	\$1.25@3.00	
Whistletree.....	10.5%@4%	
Hooks and Eyes:		
Brass..... Malleable Iron....70@70@10%	60@60@10% 70@70@10%	
Cover Mfg. Co. Gate and Scuttle Hooks..... Turner & Stanton Co. Cup and Shoulder Hooks..... Bench Hooks—See Bench Stops. Corn Hooks—See Knives, Corn.	40% 35@10% 40% 35@10%	
Horse Nails—		
See Nails, Horse.		
Horseshoes—		
See Shoes, Horses.		
Hose, Rubber—		
Garden Hose, ¾-inch:		
Competition.....ft. 6@6½¢ 3-ply Guaranteed.....ft. 8½@9¢ 4-ply Guaranteed.....ft. 9½@12¢		
Cotton Garden, ¾-in., coupled:		
Low Grade.....ft. 8¢ 9¢ Fair Quality.....ft. 10@11¢		
Irons—Sad—		
From 4 to 10.....lb. 2½@2¾¢ B. B. Sad Irons.....lb. 3¼@3½¢		
Mrs. Potts, cents per set:		
Nos. 50 55 60 65 Jap'd Caps.....98 98 98 98 Tin'd Caps.....91 98 1.01 98		
New England Pressing, ¾-in. 4¢		
Bar and Corner—		
Richards Mfg. Co., Bar, 60&10%; Corner.....	60%	
Pinking—		
Pinking Irons.....doz. 60@65¢		
Irons, Soldering		
See Coppers.		
Jacks, Wagons—		
Cover Mfg. Co.:		
Auto Screw.....30&2%; Steel, 45% Lockport.....50% Lane's Steel.....30&5% Richards' Tiger Steel, No. 130...50&10% Smith & Homeway Co.'s.....25%		
Ladder—		
Richards Mfg. Co., Ladder Jacks, 10%		
Jointers—		
Pike Mfg. Co., Saw Jointers, \$7.00. 40%		
Kettles—		
Brass, Spun, Plain.....20@25% Enamelled and Cast Iron—See Ware, Hollow.		
Knives—		
BUTCHER, KITCHEN, &c.—		
Foster Bros. Butcher, &c.30% Wilkinson Shear & Cutlery Co.60%		
Corn—		
Columbian Cutlery Co., Wilcut Brand Knives and Hooks.....60% American Fork & Hoe Co.:		
Easy Cut, P doz. No. 10 C H.\$2.10 Easy Cut, P doz. No. 10 B C H.\$2.20 Acme, P doz.\$2.35 Dent, P doz.\$2.35 Adjustable, Serrated, P doz.\$1.90 Serrated, P doz.\$1.85 Yankee, No. 1 C H.\$1.35 Yankee, No. 2 C H.\$1.15		
Drawing—		
Standard List.....80@10@-% C. E. Jennings & Co., Nos. 45, 46 Swan's Watrous L. & I. J. White.	25&1½% 16½% 16½% 20@5@25%	
Hay and Straw—		
Serrated Edge, per doz. \$5.00@3.50 Iwan's Sickle Edge.....P doz. \$9.50 Iwan's Serrated.....P doz. \$10.00		
Miscellaneous—		
Farrister'sdoz. \$2.60@3.55 Westholm'sP doz. \$3.00@3.25		
Knobs—		
Base, 2½-inch, Birch or Maple, Rubber Tip.....gro. \$1.25@1.40 Carriage, Jap., Drive, all sizes, gro. \$3@4@6 Door, Mineral.....doz. 65@70@70 Door, Por. Jap'd.doz. 70@75@75 Door, Por. Nickel, doz. \$2.05@2.15 Bardsley's Wood Door, Shutters, &c. 15%		
Lacing, Leather—		
See Belting, Leather		
Ladders, Store, &c.—		
Lane's Store.25% Myers' Noiseless Store Ladders.....50% Richards' Mfg. Co.:		
Improved Noiseless, No. 112.....50% Climax Shelf, No. 113.....50% Trolley, No. 109.....50% Ladies, Melting—		
L. & G. Mfg. Co., Melting and Plumbings'25% P. S. & W.40@10% Reading60%		
Lamps,—		
Hammer's M. I. Hand.....45% Lanterns—Tubular—		
Regular, No. 0.....doz. \$1.00@4.50 Side Lift, No. 0.....doz. \$2.25@4.75 Hinge Globe, No. 0. doz. \$2.25@4.75 Other Styles.....40@5%		
Bull's Eye Police—		
3-inch\$3.75@4.00		
Latches—Thumb—		
Roggins' Latches, Jap'd, with Screwsdoz. \$3.50@4@6		
Door—		
Cronk, & Carrier Mfg. Co., No. 101, P doz. \$2.00 Richards' Bull Dog, Heavy, No. 125.....50@5% Richards' Trump, No. 127.....\$1.50		
Leaders, Cattle—		
Small.....doz. 50¢; large, 60¢ Cover Mfg. Co.:		
Cotton, 45%; Hemp, 45%; Jute, 35%; Sisal, 20% Leathers, Pump—		
See Pumps—		
Lifters, Transom—		
R. & E.10%		
Lines—		
Wire Clothes, Nos. 18 19 20 100 feet.....\$2.30 1.95 1.75 75 feet.....\$1.95 1.65 1.50		
Samson Cordage Works:		
Solid Braided Chalk, Nos. 0 to 3. 40% Solid Braided Masons'30% Silver Lake Braided Chalk, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50; No. 4, \$8.00; No. 5, \$8.50; No. 6, \$9.00; No. 7, \$9.50; No. 8, \$10.00; No. 9, \$10.50; No. 10, \$11.00; No. 11, \$11.50; No. 12, \$12.00; No. 13, \$12.50; No. 14, \$13.00; No. 15, \$13.50; No. 16, \$14.00; No. 17, \$14.50; No. 18, \$15.00; No. 19, \$15.50; No. 20, \$16.00; No. 21, \$16.50; No. 22, \$17.00; No. 23, \$17.50; No. 24, \$18.00; No. 25, \$18.50; No. 26, \$19.00; No. 27, \$19.50; No. 28, \$20.00; No. 29, \$20.50; No. 30, \$21.00; No. 31, \$21.50; No. 32, \$22.00; No. 33, \$22.50; No. 34, \$23.00; No. 35, \$23.50; No. 36, \$24.00; No. 37, \$24.50; No. 38, \$25.00; No. 39, \$25.50; No. 40, \$26.00; No. 41, \$26.50; No. 42, \$27.00; No. 43, \$27.50; No. 44, \$28.00; No. 45, \$28.50; No. 46, \$29.00; No. 47, \$29.50; No. 48, \$30.00; No. 49, \$30.50; No. 50, \$31.00; No. 51, \$31.50; No. 52, \$32.00; No. 53, \$32.50; No. 54, \$33.00; No. 55, \$33.50; No. 56, \$34.00; No. 57, \$34.50; No. 58, \$35.00; No. 59, \$35.50; No. 60, \$36.00; No. 61, \$36.50; No. 62, \$37.00; No. 63, \$37.50; No. 64, \$38.00; No. 65, \$38.50; No. 66, \$39.00; No. 67, \$39.50; No. 68, \$40.00; No. 69, \$40.50; No. 70, \$41.00; No. 71, \$41.50; No. 72, \$42.00; No. 73, \$42.50; No. 74, \$43.00; No. 75, \$43.50; No. 76, \$44.00; No. 77, \$44.50; No. 78, \$45.00; No. 79, \$45.50; No. 80, \$46.00; No. 81, \$46.50; No. 82, \$47.00; No. 83, \$47.50; No. 84, \$48.00; No. 85, \$48.50; No. 86, \$49.00; No. 87, \$49.50; No. 88, \$50.00; No. 89, \$50.50; No. 90, \$51.00; No. 91, \$51.50; No. 92, \$52.00; No. 93, \$52.50; No. 94, \$53.00; No. 95, \$53.50; No. 96, \$54.00; No. 97, \$54.50; No. 98, \$55.00; No. 99, \$55.50; No. 100, \$56.00; No. 101, \$56.50; No. 102, \$57.00; No. 103, \$57.50; No. 104, \$58.00; No. 105, \$58.50; No. 106, \$59.00; No. 107, \$59.50; No. 108, \$60.00; No. 109, \$60.50; No. 110, \$61.00; No. 111, \$61.50; No. 112, \$62.00; No. 113, \$62.50; No. 114, \$63.00; No. 115, \$63.50; No. 116, \$64.00; No. 117, \$64.50; No. 118, \$65.00; No. 119, \$65.50; No. 120, \$66.00; No. 121, \$66.50; No. 122, \$67.00; No. 123, \$67.50; No. 124, \$68.00; No. 125, \$68.50; No. 126, \$69.00; No. 127, \$69.50; No. 128, \$70.00; No. 129, \$70.50; No. 130, \$71.00; No. 131, \$71.50; No. 132, \$72.00; No. 133, \$72.50; No. 134, \$73.00; No. 135, \$73.50; No. 136, \$74.00; No. 137, \$74.50; No. 138, \$75.00; No. 139, \$75.50; No. 140, \$76.00; No. 141, \$76.50; No. 142, \$77.00; No. 143, \$77.50; No. 144, \$78.00; No. 145, \$78.50; No. 146, \$79.00; No. 147, \$79.50; No. 148, \$80.00; No. 149, \$80.50; No. 150, \$81.00; No. 151, \$81.50; No. 152, \$82.00; No. 153, \$82.50; No. 154, \$83.00; No. 155, \$83.50; No. 156, \$84.00; No. 157, \$84.50; No. 158, \$85.00; No. 159, \$85.50; No. 160, \$86.00; No. 161, \$86.50; No. 162, \$87.00; No. 163, \$87.50; No. 164, \$88.00; No. 165, \$88.50; No. 166, \$89.00; No. 167, \$89.50; No. 168, \$90.00; No. 169, \$90.50; No. 170, \$91.00; No. 171, \$91.50; No. 172, \$92.00; No. 173, \$92.50; No. 174, \$93.00; No. 175, \$93.50; No. 176, \$94.00; No. 177, \$94.50; No. 178, \$95.00; No. 179, \$95.50; No. 180, \$96.00; No. 181, \$96.50; No. 182, \$97.00; No. 183, \$97.50; No. 184, \$98.00; No. 185, \$98.50; No. 186, \$99.00; No. 187, \$99.50; No. 188, \$100.00; No. 189, \$100.50; No. 190, \$101.00; No. 191, \$101.50; No. 192, \$102.00; No. 193, \$102.50; No. 194, \$103.00; No. 195, \$103.50; No. 196, \$104.00; No. 197, \$104.50; No. 198, \$105.00; No. 199, \$105.50; No. 200, \$106.00; No. 201, \$106.50; No. 202, \$107.00; No. 203, \$107.50; No. 204, \$108.00; No. 205, \$108.50; No. 206, \$109.00; No. 207, \$109.50; No. 208, \$110.00; No. 209, \$110.50; No. 210, \$111.00; No. 211, \$111.50; No. 212, \$112.00; No. 213, \$112.50; No. 214, \$113.00; No. 215, \$113.50; No. 216, \$114.00; No. 217, \$114.50; No. 218, \$115.00; No. 219, \$115.50; No. 220, \$116.00; No. 221, \$116.50; No. 222, \$117.00; No. 223, \$117.50; 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No. 330, \$171.00; No. 331, \$171.50; No. 332, \$172.00; No. 333, \$172.50; No. 334, \$173.00; No. 335, \$173.50; No. 336, \$174.00; No. 337, \$174.50; No. 338, \$175.00; No. 339, \$175.50; No. 340, \$176.00; No. 341, \$176.50; No. 342, \$177.00; No. 343, \$177.50; No. 344, \$178.00; No. 345, \$178.50; No. 346, \$179.00; No. 347, \$179.50; No. 348, \$180.00; No. 349, \$180.50; No. 350, \$181.00; No. 351, \$181.50; No. 352, \$182.00; No. 353, \$182.50; No. 354, \$183.00; No. 355, \$183.50; No. 356, \$184.00; No. 357, \$184.50; No. 358, \$185.00; No. 359, \$185.50; No. 360, \$186.00; No. 361, \$186.50; No. 362, \$187.00; No. 363, \$187.50; No. 364, \$188.00; No. 365, \$188.50; No. 366, \$189.00; No. 367, \$189.50; No. 368, \$190.00; No. 369, \$190.50; No. 370, \$191.00; No. 371, \$191.50; No. 372, \$192.00; No. 373, \$192.50; No. 374, \$193.00; No. 375, \$193.50; No. 376, \$194.00; No. 377, \$194.50; No. 378, \$195.00; No. 379, \$195.50; No. 380, \$196.00; No. 381, \$196.50; No. 382, \$197.00; No. 383, \$197.50; No. 384, \$198.00; No. 385, \$198.50; No. 386, \$199.00; No. 387, \$199.50; No. 388, \$200.00; No. 389, \$200.50; No. 390, \$201.00; No. 391, \$201.50; No. 392, \$202.00; No. 393, \$202.50; No. 394, \$203.00; No. 395, \$203.50; No. 396, \$204.00; No. 397, \$204.50; No. 398, \$205.00; No. 399, \$205.50; No. 400, \$206.00; No. 401, \$206.50; No. 402, \$207.00; No. 403, \$207.50; No. 404, \$208.00; No. 405, \$208.50; No. 406, \$209.00; No. 407, \$209.50; No. 408, \$210.00; No. 409, \$210.50; No. 410, \$211.00; No. 411, \$211.50; No. 412, \$212.00; No. 413, \$212.50; No. 414, \$213.00; No. 415		

10-lb. cans,
10 in case... \$1.25
10-lb. cans, less
than 10... 10¢ 10¢ 8¢
Less quantity... 10¢ 10¢ 8¢
NOTE.—In lots 1 to 3 tons a discount of
10% is given.

Extensions, Bit—

Ford's Auger Bit Extensions... 40&5%

Extractors, Lemon Juice—

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's Jap'd and Galv., 50¢ &

5%; Bronze and Plated... 50¢

Walling's... 50¢

Upon's Patent... 40¢

Cord and Weight—

Ives, 1/4 gro., \$1.05... 10%

Titan, 1/4 gro., \$0.65... 10%

Corrugated—

Acme Corrugated Fasteners... 70%

Faucets—

Cork Lined... 50¢ 10@60%

Metallic Key, Leather Lined... 60¢ 10@70%

Red Cedar... 10¢ 50@10¢ 10¢ 50@75%

Petroleum... 70¢ 10@75%

B. & L. B. Co.: Metal Key... 60¢ 10% Star... 60¢ West Lock... 50¢ 10% John Sommer's Peerless Tin Key... 40¢ John Sommer's Boss Tin Key... 50¢ John Sommer's Victor Mtl. Key... 50¢ 10% John Sommer's Duplex Metal Key... 60¢ John Sommer's Diamond Lock... 40¢ John Sommer's L. X. L. Cork Lined... 50¢ John Sommer's Reliable Cork Lined... 50¢ 10% John Sommer's Chicago Cork Lined... 60¢ John Sommer's O. K. Cork Lined... 50¢ John Sommer's No Brand, Cedar... 50¢ John Sommer's Perfection, Cedar... 40¢ Self Measuring: Enterprise, Self Measuring and Pump, 1/4 gro., \$36.00... 40&10% Lane's, 1/4 gro., \$36.00... 40&10% National Measuring, 1/4 gro., \$36.10@10%

Fellow Plates—

See Plates, Fellow.

Files— Domestic—

List Nov. 1, 1899.

Best Brands... 70¢ 10@75&10%

Standard Brands... 75¢ 10@80%

Lower Grade... 75¢ 10@10@80@10%

Disston's Superfine... 60¢

Gold Medal... 70%

McCaffrey's American Standard... 60¢ 10@10%

Imported—

Stub's Tapers, Stub's list, July 24, '97... 33 1/2 @40%

Fixtures, Fire Door—

Richards Mfg. Co.: Universal, No. 103; Special, No. 104... \$3.75

Fusible Links, No. 96... 50¢

Expansion Bolts, No. 107... 60¢ 10%

Grindstone—

Net Prices:

Inch... 15 17 19 21

Per doz... \$3.60 3.85 4.15 4.65

Peck, Stow & Wilcox Co.: In... 15 17 19 21 24

\$1.00 4.40 4.75 5.50 6.50... 30%

Reading Hardware Co... 60%

Fodder Squeezers—

See Compressors.

Forks—

American Fork & Hoe Co.: Iowa Dig-Ezy Potato... 70&5% Hay, Regular, 3-time... 45&20@12% Hay, Regular, 4-time... 60&7@45% Champion, Hay... 60&12% Acme, Hay... 60&20% Manure, Regular, 4-time... 65&5% Manure, Regular, 5 and 6 time... 75% Champion, Manure... 65&5% Columbia, Manure... 70% Acme, 4-time... 60&10@5% Round Shoulder Header, 4-time... 65% Champion, Header... 65% Dakota, Header... 65% Kansas Header... 65% Wood, Barley... 35&5% Steel, Barley... 65% Columbia, Spading... 70&1/2@5%

Frames— Wood Saw—

White, S'g't Bar, per doz. 75¢ @80¢

Red, S'g't Bar, per doz. \$1.00 @1.25

Red, Dbl. Brace, per doz. \$1.40 @1.50

Freezers, Ice Cream—

Qt... 1 2 3 4 5 6

Each... \$1.25 \$1.60 \$1.90 \$2.20 \$2.80

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry Pans— See Pans, Fry.**Fuse— Per 1000 Feet.**

Hemp... \$2.75

Cotton... 3.20

Waterproof Sgl. Taped... 3.65

Waterproof Dbl. Taped... 4.40

Waterproof Tpl. Taped... 5.15

Gates, Molasses and Oil—

Stebbins' Pattern... \$10@60&10%

Gauges—

Marking, Mortise, &c... 50@50&10%

Chapin-Stephens Co.: Marking, Mortise, &c... 50&50@10%

Disston's Marking, Mortise, &c... 60@60@10%

Wire, Brown & Sharpe's... 33 1/2%

Wire, Morse's... 25%

Wire, P. S. & W. Co... 33 1/2%

Gimlets— Single Cut—

Numbered assortments, per gross.

Nail, Metal, No. 1, \$2.00; 2, \$2.30

Spike, Metal, No. 1, \$4.00; 2, \$4.30

Nail, Wood Handled, No. 1, \$2.30; 2, \$2.60

Spike, Wood Handled, No. 1, \$4.30; 2, \$4.60

Glass, American Window

See Trade Report.

Glasses, Level—

Chapin-Stephens Co... \$5@65&10%

Disston & Sons... 50&10%

Glue, Liquid Fish—

Bottles or Cans, with Brush,

25¢ 10@50%

Elwell's... 50¢

Grease, Axle—

Common Grade... gro. \$6.00@6.50

Dixon's Everlasting 10-lb. pails ea. 65¢; in boxes, 1/4 doz., 1 lb. 12¢; 2 lb. 24¢

Helmet Hard Oil... 25¢

Griddles, Soapstone—

Pike Mfg. Co... \$3 1/4@33 1/4&10%

Grinders—

Pike Mfg. Co.: Hand and Foot Power, Pyko Nos. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power) 33 1/2%

Mower Knife and Tool, \$5.00 40&10%

Royal Mfg. Co.: Hand and Foot Power, each, Nos. 91, \$1.75; 1A, \$2.50; 10, \$3.00

Sickle Grinders, each, Nos. 20, \$5.00; 20A, \$6.00; 20A Combined, \$6.50

Dish Grinders, each, \$2.50... 10¢

Grindstones—

Pike Mfg. Co.: Improved Family Grindstones, 1/4 inch, 1/4 doz., \$2.00... 23 1/2%

Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted... 40¢

Grips, Nipple—

Perfect Nipple Grips... 40&10&2%

Halters and Ties—

Cow Ties... 70¢ 10@10@—%

Bridport Chain Co.: Triumph Coil and Halters, 35&2 1/2@40%

Brown Coil and Halters... 15¢ 50@5 5¢

Brown Cow Ties... 50&50@50&10 5¢

Brown Tie Outs... 70@10@5 5¢

Court Mfg. Co.: Web... 30&2 1/2%
Jute Rope... 35¢
Sisal Rope... 20¢
Cotton Rope... 45¢
Hemp Rope... 45¢

Oneida Community: Am. Coil and Halters, 10¢ 40@45%
Am. Cow Ties... 15@50¢

Niagara Coil and Halters... 15¢ 50@5 5¢

Niagara Cow Ties... 45¢ 50@30@10 5¢

Hammers—**Handled Hammers—**

Heller's Machinist's... 55@10@55@10@5%

Heller's Farriers... 10@5@40@10@5%

Peck, Stow & Wilcox Co.: Crucible Steel... 40@10@50%
Farriers'... 10@10@50%
Riveting... 40@10@50%
Machinists'... 65@65%
Blacksmiths'... 50%
Elmote Shoemakers' Hammers... 75¢
Fayate R. Plumb: E. Nail... 40@2 1/2@40@12 1/2%
Eng. and B. S. Hand, 50@10@50@60@5%
Machinists' Hammers... 60@10@5%
Rivet and Timmers'... 10@7 1/2@40@12 1/2@5%
Victor Magnetic Tack, 1/4 gro. \$7.75

Heavy Hammers and Sledges—

Under 3 lb., per lb., 50¢... 80@10%

3 to 5 lb., per lb., 40¢... 80@10@10%

Over 5 lb., per lb., 30¢... 100@10%

Over 5 lb., per lb., 30¢... 80@10@10%

Handles—**Agricultural Tool Handles—**

Axe, Pick, do... \$6.10@80@10@5%

Hoe, Rake, do... 40¢

Fork, Shovel, Spade, &c.: Long Handles... 40%
D Handles... 40%

Cross-Cut Saw Handles—

Atkins'... 40%
Disston's Handles and Saw Tabs... 45%

Mechanics' Tool Handles—

Auger, assorted... gro. \$3.00@3.50

Brod. Awl... \$1.65@1.75

Chisel Handles, Ass'd, per gro.: Tanged Firmer, Apple, \$2.40@
\$2.65; Hickory... \$2.15@2.40

Socket Firming, Apple, \$1.75@
\$1.95; Hickory... 1.60@1.75

Socket Framing, Hickory, \$1.60@1.75

Heavy Hammers and Sledges—

Under 3 lb., per lb., 50¢... 80@10%

3 to 5 lb., per lb., 40¢... 80@10@10%

Over 5 lb., per lb., 30¢... 100@10%

Over 5 lb., per lb., 30¢... 80@10@10%

Handles—**Garment—**

Pullman Trouser, 1/4 gro., No. 1

\$9.00; No. 4, \$21.00; No. 5, \$16.50;

No. 8, Black Enamel, \$17.50; No. 10,

\$21.00; No. 12, \$18.00; No. 15, \$20.00;

No. 18, Loops... \$10.00

Victor Folding... 1/4 gro. \$9.60

Gate—

Myers' Patent Gate Hangers, 1/4 gro. ... 50%

Joist and Timber—

Bane Bros. Co... 35%

Hasps—

Griffin's Security Hasp... 50@10%

McKinney's Perfect Hasp, 1/4 gro. 60%

Hatchets—

Regular list, first qual. 50@60@10@60%

Second quality... 60@60@10@60%

Heaters, Carriage—

Clark, No. 5, \$1.25; No. 5B, \$1.50; No. 6,

3.75; No. 3D, \$2.00; No. 1D, \$2.25;

No. 3E, \$2.50; No. 1, \$3.00... 25%

Clark Coal, 1/4 gro. \$0.75... 25%

Hinges—**Blind and Shutter Hinges**

Surface Gravity Locking Blind:

Doz. Sets with Fastenings, No. 1, \$0.70; No. 3, \$1.25; No. 5, \$2.65.

Hinges—

Mortise Shutter... 80%

Mortise Reversible Shutter... 80%

North's Automatic Blind Fixtures,

No. 2, for Wood, \$3.00; No. 3, for

Brick, \$1.50... 10%

Charles Parker Co.: Hinge & Benjamin Automatic Blind

Hinges... 20%

Hale's Blind Awning Hinges, No.

110, for wood, \$0.90; No. 111, for

brick, \$0.90... 20%

Hitchers, Stall—

Cover Mfg. Co., Stall Hitchers... 30@2%

Hods— Coal—

M'gor's list, price per gross:

Inch... 15 16 18

Galv. Open... \$35 \$39 \$41 \$46

Jap. Open... 26 28 31 33

Galv. Funnel... 43 48 52 56

Jap. Funnel... 33 36 59 43

Extra 10% often given on most of these Hinges

W. A. Zelnicker Supply Co.: Hammer, 1/4 doz., 12 in., \$2.00; 14 in., \$2.00; 16 in., \$2.30; 18 in., \$2.50; 20 in., \$2.70; 22 in., \$3.00; 24 in., \$3.30; 26 in., \$3.50; 28 in., \$3.80; 30 in., \$4.00; oval, 30 in., \$3.80; oval, 36 in., \$4.00; octagon, 36 in., \$4.00; 38 in., \$4.30; 40 in., \$4.60; 42 in., \$4.90; 44 in., \$5.20; 46 in., \$5.50; 48 in., \$5.80; 50 in., \$6.10; 52 in., \$6.40; 54 in., \$6.70; 56 in., \$7.00; 58 in., \$7.30; 60 in., \$7.60; 62 in., \$7.90; 64 in., \$8.20; 66 in., \$8.50; 68 in., \$8.80; 70 in., \$9.10; 72 in., \$9.40; 74 in., \$9.70; 76 in., \$10.00; 78 in., \$10.30; 80 in., \$10.60; 82 in., \$10.90; 84 in., \$11.20; 86 in., \$11.50; 88 in., \$11.80; 90 in., \$12.10; 92 in., \$12.40; 94 in., \$12.70; 96 in., \$13.00; 98 in., \$13.30; 100 in., \$13.60; 102 in., \$13.90; 104 in., \$14.20; 106 in., \$14.50; 108 in., \$14.80; 110 in., \$15.10; 112 in., \$15.40; 114 in., \$15.70; 116 in., \$16.00; 118 in., \$16.30; 120 in., \$16.60; 122 in., \$16.90; 124 in., \$17.20; 126 in., \$17.50; 128 in., \$17.80; 130 in., \$18.10; 132 in., \$18.

Hoses—Eye—
Scovil and Oval Pattern,
60¢ 10¢@60¢ 10¢ 10%
Grub, list Feb. 23, 1899,
70¢ 10¢@70¢ 10¢ 10%
D. & H. Scovil..... 27¢
Am. Fork & Hoe Co. (Scovil Pattern) 60¢ 5¢

Handled—

Cronk's Weeding, No. 1, \$2.00; No. 2, \$2.50
Star Double Bit..... \$2.50
American Fork & Hoe Co.:
Regular, Cotton..... 75¢ 10¢&2½%
Crescent, Cultivator..... 75¢ 2½%
Mattock, Senior..... 70¢
Sprouting..... 50¢
Tobacco, Harper's..... 65¢ 15¢&10%
Warren..... 55¢ 10¢&10¢
Ivanhoe..... 65¢ 15¢&10%
Cultivator, B B 6..... 70¢ 10¢&10¢
Cultivator, B B 6½..... 70¢ 10¢&10¢
Weeding, Acme..... 72¢ 10¢&10¢
Scuffle, Lightning..... 60¢ 5¢

Hoisting Apparatus—
See Machines, Hoisting.**Holders—Bit—**

Angular, P. doz. \$2.00..... 45¢ 10%
Door—
Bardsley's, Iron, 40%; Brass and
Bronze..... 50¢
Empire..... 25¢
Pullman..... 25¢
Richards Mfg. Co.: Nos. 117, Ever-
ready, 40%; Nos. 118, 119, Sure
Grip..... 50¢
Superior..... 40¢

File and Tool—

Nicholson File Holders and File
Handles..... 33¢@40%

Fruit Jar—

Triumph Fruit Jar Holder, P. gross,
\$18.00; P. doz. \$2.00

Trace and Rein—

Fernald Double Trace Holder, P. doz.,
pairs..... \$1.25
Dash Rein Holder, P. doz. \$1.25

Hones—Razor—

Pike Mfg. Co., Belgian and Swatv.,
50%; German..... 33¢

Hooks—Cast Iron—

Bird Cage, Reading..... 10¢
Clothes Line, Reading List..... 40¢
Coat and Hat, Reading..... 45¢ 20¢
Coat and Hat, Wrightsville..... 60¢ 5¢
Harness, Reading List..... 40¢

Wire—

Belt, Nos. 1 to 15..... 75¢ 10¢@80%
Wire C. & H. Hooks..... 80¢@80¢ 10%
Bradley Metal Clasp Wire, Coat and
Hat, 75¢ 10¢@80%; Ceiling, 75¢ 10¢@80%
Columbian Hdw. Co., Gen..... 75¢ 10¢
Parker Wire Goods Co., King..... 75¢ 10¢
Wire Goods Co.:
Acme, 60&10%; Chief, 70&10%;
Crown, 75%; Czar, 65&10%;
Brace, 75%; Czar Harness, 50%;
Ceiling, 75%.

Wrought Iron—

Box, 6 in., per doz. \$0.90; 8 in.,
\$1.15.

Cotton doz. \$1.25@1.50
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—

Hooks, Bench, see Stops, Bench.
Bush, Light, doz. \$6.20; Medium,
\$6.75; Heavy, \$7.65
Grass, bcst, all sizes, per doz.,
\$2.75@3.00
Grass, common grades, all sizes,
per doz. \$1.25@1.50
Whiffletree lb. 5¢@4¢
Hooks and Eyes:
Brass 60¢@60¢ 10%
Malleable Iron 70¢@70¢ 10%
Covert Mfg. Co., Gate and Scuttle
Hooks 40¢
Turner & Stanton Co. Cup and
Shoulder 35¢&10%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See Nails, Horse.

Horseshoes—

See Shoes, Horses.

Hose, Rubber—

Garden Hose, ¾-inch:
Competition ft. 6@6½¢
3-ply Guaranteed ft. 8½@9¢
4-ply Guaranteed ft. 9½@12¢
Cotton Garden, ¾-in., coupled:
Loc Grade ft. 8¢ 9¢
Fair Quality ft. 10@11¢

Irons—Sad—

From 4 to 10..... lb. 2½@2½¢
B. B. Sad Irons..... lb. 3½@3½¢
Mrs. Potts', cents per set:
Nos. 50 55 60 65
Jap'd Caps..... 24 23 25 23
Tin'd Caps..... 91 88 1.01 98
New England Pressing. lb. 3½@4¢

Bar and Corner—

Richards Mfg. Co., Bar, 60&10%;
Corner 60%

Pinking—

Pinking Irons..... doz. 60@65¢

Irons, Soldering

See Coppers.

Jacks, Wagons—

Cover Mfg. Co.:
Auto Screw..... 30¢ 2%; Steel, 45¢
Lockport..... 50¢
Lane's Steel..... 30¢ 5¢
Richards' Tiger Steel, No. 130..... 50¢ 10%
Smith & Hemenway Co.'s..... 25¢

Ladder—

Richards Mfg. Co., Laddler Jacks. 30¢

Jointers—

Pike Mfg. Co., Saw Jointers, \$7.00. 40%

Kettles—

Brass, Spun, Plain..... 20@25%
Enamelled and Cast Iron—See Ware,
Hollow.

Knives—

Butcher, Kitchen, &c.—
Foster Bros' Butcher, &c. 30%
Wilkinson Shear & Cutlery Co. 60%

Corn—

Columbian Cutlery Co., Wilcut
Brand Knives and Hooks. 60%

American Fork & Hoe Co.:
Easy Cut, P. doz. No. 10 C. H. \$2.10

Easy Cut, P. doz. No. 10 B. C. H. \$2.50

Acme, P. doz. \$2.35

Lee, P. doz. \$1.90

Adjustable, Serrated, P. doz. \$1.85

Serrated, P. doz. \$1.35

Yankee, No. 1 C. H. \$1.35

Yankee, No. 2 C. H. \$1.15

Drawing—

Standard List..... 80¢ 10@—%
C. E. Jennings & Co., Nos. 45 46
25@7½%
Jennings & Griffin, Nos. 41 42
60% 7½%
Swan's 66½@67½%
Watrous 16½%
L. & I. J. White. 20@5@25%

Hay and Straw—

Serrated Edge, per doz. \$5.00@5.50

Iwan's Sickle Edge, P. doz. \$0.53

Iwan's Serrated, P. doz. \$1.00

Miscellaneous—

Farrier's doz. \$2.60@3.55

Westholm's P. doz. \$3.00@3.25

Knobs—

Base, 2½-inch, Birch or Maple,
Rubber Tip..... gro. \$1.25@1.40

Carriage, Jap., Drive, all sizes,
gro. 25@40¢

Door, Mineral..... doz. 65¢@70¢

Door, Por. Jap'd, doz. 70¢@75¢

Door, Por. Nickel, doz. \$2.05@2.15

Bardsley's Wood Door, Shutters, &c. 15%

Lacing, Leather—

See Belting, Leather

Ladders, Store, &c.—

Lane's Store..... 25%
Myers' Noiseless Store Ladders. 50%

Richards Mfg. Co.:
Improved Noiseless, No. 112. 50%

Climax Shelf, No. 113. 50%

Trolley, No. 109. 50%

Ladies, Melting—

L. G. Mfg. Co., Melting and
Plumbers' 25%

P. S. & W. 40@10%
Reading 60%

Lamps,—

Hammer's M. I. Hand. 45%

Lanterns—Tubular—

Regular, No. 0. doz. \$5.00@4.50

Side Lift, No. 0. doz. \$5.25@4.75

Hinge Globe, No. 0. doz. \$4.25@4.75

Other Styles. 40@2%

Bull's Eye Police—

3-inch \$3.75@4.00

Latches—Thumb—

Roggins' Latches, Jap'd, with
Screws doz. \$5@4@40¢

Door—

Cronk & Carrier Mfg. Co., No. 101,
P. doz. 10.00

Richards' Bull Dog, Heavy, No.
125. 50% 5%
Richards' Trump, No. 127. \$1.50

Leaders, Cattle—

Small. doz. 50¢; large, 60¢

Cover Mfg. Co.:
Cotton, 45%; Hemp, 45%; Jute,
35%; Sisal, 20%.

Leathers, Pump—

See Pumps—

Lifters, Transom—

R. & E. 10%

Lines—

Wire Clothes, Nos. 18 19 20

100 feet. \$2.30 1.95 1.75

75 feet. \$1.95 1.65 1.50

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3. 40%

Solid Braided Masons'. 30%

Silver Lake Braided Chalk, No. 0,
\$6.00; No. 1, \$6.50; No. 2, \$7.00; No.
3, \$7.50; No. 4, \$8.00

Masons' Lines, Shade Cord, &c.;
White Cotton, No. 3½, \$1.50; No. 4,
\$2.00; No. 4½, \$2.50; Colors, No. 3½,
\$1.75; No. 4, \$2.25; No. 4½, \$2.75;

Linen, No. 3½, \$2.50; No. 4, \$3.50;
No. 4½, \$4.50.

Tent and Awning Lines: No. 5,
White Cotton, \$7.50; Drab Cotton,
\$8.50.

Clothes Lines, White Cotton: 50 ft.,
\$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75
ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75;

100 ft., \$5.25.

Turner & Stanton Co.:
Solid Braided Chalk, Masons' and
Awning Lines. 40%

Clothes Lines, White Cotton. 20%

Shade Cord, Cotton or Linen. 20%

Locks—Cabinet—

Cabinet Locks. 33½@33½@5%

Door Locks, Latches, &c.—

NOTE—Net prices are very often made
on these goods.

Reading Hardware Co. 40%

R. & E. Mfg. Co. 10%
Smith & Hemenway Co.'s. 25%

Padlocks—

R. & E. Mfg. Co., Wrought Steel and
Brass 7½@10%

Nails—

Wire Nails and Brads, Mi-

cellaneous 35¢@35¢@50% 10%

Cut and Wire. See Trade Report.

Hungarian, Finishing, Upholster-

ers', &c. See Tacks.

Horse—

Nos. 6 7 8 9 10

Anchor 23 21 20 19 18 17 16

Coleman 13 12 11 11 10 9 8

New Haven 23 21 20 19 18 17 16

Livingston 19 18 17 16 16 15 14

Western 19 18 17 16 16 15 14

Tent and Awning Lines: No. 5,

White Cotton, \$7.50; Drab Cotton,
\$8.50.

Clothes Lines, White Cotton: 50 ft.,
\$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75
ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75;

100 ft., \$5.25.

Turner & Stanton Co.:
Solid Braided Chalk, Masons' and
Awning Lines. 40%

Clothes Lines, White Cotton. 20%

Shade Cord, Cotton or Linen. 20%

Picture—

1½ 2 2½ 3 in.

Brass Hd. gro. 4½ 5½ 6½ 7½ 8½

Por. Head, gro. 1.10 1.10 1.10

Upholsters—

Brass 30%

Plated 30@10%

Nippers—

See Pliers and Nippers.

Nipples—

Standard Nipple Co.:
Wrought Pipe nipples. 80%

Nuts—Blank or Tapped.

Cold Punched: Off list.

Square 5.00

Hexagon 6.00

Square, C. T. & R. 5.80

Hexagon, C. T. & R. 6.00

Padlocks—

R. & E. Mfg. Co., Wrought Steel and
Brass 7½@10%

Hot Pressed:

Square 5.90¢

Hexagon 6.40¢

Off list.

Square 5.90¢

Hexagon 6.40¢

Oakum—

Best lb. 6½¢

U. S. Navy lb. 6¢

Navy lb. 5¢

Plumbers' Spun Oakum. 2½@3¢

Oil—

Pike Mfg. Co., Stonoil. 10%

Oil Tanks—

See Tanks, Oil.

Oilers—

Steel, Copper Plated. 75¢@10%

Chase or Paragon.

Brass and Copper. 50¢@10%

Zinc 65¢@10@70%

Railroad

American Tube & Stamping Co.:

Spring Bottom Cans. 70@10%

10%

Railroad Oilers, &c. 60@10@10%

Herr Fruit Jar Co.:

Spring Bottom Cans. 70@10%

10%

Livingston Nail Co.:
 Daisy \$1.00
 Little Star \$1.00
 Rocking Table \$1.00
 Reading Hardware Co.:
 Advance \$1.00
 Baldwin \$1.00
 Reading 72 \$1.25
 Reading 78 \$1.25

Orange—

Goodell Co., Success..... each \$20.00
Potato—

Saratoga \$1.00
 White Mountain \$1.00

Picks and Mattocks—

(List Jan., 1908.)

List 75¢ to 10%
 Cronk's Handled Garden Mattock, \$3.00, 33%.

Pinking Irons—

See Irons, Pinking.

Pins, Escutcheon—

Braes 50¢ to 10%
 Iron, list Nov. 11, '85, 60¢ to 10%

Pipe, Cast Iron Soil—

Eastern Prices:
 Standard, 2-6 in. 63%
 Extra Heavy, 2-6 in. 74%
 Fittings, Standard and
 Heavy 80% Extra 10%
10% off

Pipe, Merchant—Carloads to Consumers:
 Steel. Iron.
 Blk. Galv. Blk. Galv.

1/2 end & 1/4 in.	%	%	%	%
1/2 in.	See Trade Report			
2/4 to 6 in.				
7 to 12 in.				

Pipe, Vitrified Sewer—

Carload lots.

Standard Pipe and Fittings, 3 to 2½ in., f.o.b. factory:
 First-class 85%
 Second-class 87%

Pipe, Stove—

Per 100 joints,
 Edwards' Nested: C. L. L. C. L.
 5 in. Standard Blue \$6.25 \$7.25
 6 in. Standard Blue 6.75 7.75
 7 in. Standard Blue 7.75 8.75
 8 in. Royal Blue 7.00 8.00
 9 in. Royal Blue 7.50 8.50
 10 in. Royal Blue 8.50 9.50
 Wheeling Corrugating Co.'s Nested:
 5 in. Uniform Color \$5.90 \$6.90
 6 in. Uniform Color 6.40 7.40
 7 in. Uniform Color 7.40 8.40

Planes and Plane Irons—**Wood Planes—**

Bench, first qual. 30@30¢ to 5%
 Bench, second qual. 40@40¢ to 5%
 Molding 25@25¢ to 5%
 Chapin-Stephens Co.:
 Bench, First Quality 30%
 Bench, Second Quality 40%
 Molding and Miscellaneous 25%
 Toy and German 30%
 Union 60%

Iron Planes -

Chaplin's Iron Planes 60%
 Union 60%

Plane Irons—

Wood Bench Plane Irons, list Dec. 12, '06 25%
 Buck Bros. 30%
 Chapin-Stephens Co. 25%
 L. & J. White 20&25%
 Planter's, Corn, Hand—

Kohler's Eclipse. \$1.00
 Plates—

Fellow lb. 3/4@5¢
 Avery Stamping Co.:
 Standard Wrot. Steel Fellos Plates
 in 100 lb. kegs, per 100 lb., ¾-in. to
 1½-in., \$4.00 net; 1¼-in. to 2-in.,
 inclusive, \$3.75 net.

Steel Pipe Hook—

Never-Break 75¢ to 10%
 Pliers and Nippers -

Button Pliers 75¢ to 10% & 10%
 Gas Burners, per doz. 5 in., \$1.25
 @ \$1.30; 6 in., \$1.45, \$1.50.
 Gas pipe. 7 8 10 12-in.

\$2.00 \$2.25 \$2.75 \$3.50
 Acme Nippers 50¢ to 5%
 Cronk & Carrier Mfg. Co.:
 American Button 80%
 Improved Button 75&10%
 Cronk's 60%
 No. 5 Linemen's 50%
 Stub's Pattern 45%
 Combination and others 33%
 Elmore Tool Mfg. Co.:
 Gas Pliers 70%
 Wire and Cutting Pliers 75%
 Heller's Farriers' Nippers, Pincers
 and Tools. 40&40% & 10&10%
 P. S. & W. Tinner's Cutting Nip-
 pers 40%
 Swedish Side, End and Diagonal
 Cutting Pliers 50%
 Utica Drop Forge & Tool Co.:
 Pliers and Nippers, all kinds 40%

Plumbs and Levels—

Chapin-Stephens Co.:
 Plumbs and Levels 30¢ to 10%
 Chat'n's Imp. Brass Cor. 40¢ to 10%
 Pocket Levels 30¢ to 10%
 Extension Sights 30¢ to 10%
 Machinist's Levels 10@10% to 10%
 Ditsworth & Sons:
 Shaving Levels 60&10%
 Pocket Levels 60&10%
 Plumb and Levels 60&10%
 Track Level and Gauge 50&10%
 Woods' Extension 33%
 Points, Glaziers—

Bulk and 1-lb. papers. lb. 9¢
 1/2-lb. papers. lb. 9½¢
 1/4-lb. papers. lb. 10¢
 Bulk and 1-lb. papers. lb. 9¢
 1/2-lb. papers. lb. 9½¢
 1/4-lb. papers. lb. 10¢

Police Goods—**Manufacturers' Lists. \$2@25¢ to 5%**

Tanner's 25%

Polish—Metal, Etc—

Ladd Co.: Putzad Liquid, 3 gal. gro., ½ pts.

\$12.00; 1 pts., \$20.00; 1 qt., \$4.00;

1/2 gal., \$6.35; 1 gal., \$12.00.

Prestoline Liquid, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

Prestoline Paste, 1 pt. No. 1 (2 qu.), \$1.00;

\$1.00; No. 2 (1 qu.), \$1.00, 10%.

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\$1.00; No. 2 (1 qu.), \$1.00, 10%

Scythe Stones—

Pike Mfg. Co.	1907 list:
Black Diamond S. S.	12¢ gro. \$12.00
Lamoille S. S.	12¢ gro. \$11.00
White Mountain S. S.	12¢ gro. \$9.50
Green Mountain S. S.	12¢ gro. \$7.00
Extra Indian Pond S. S.	12¢ gro. \$8.00
No. 2 Indian Pond S. S.	12¢ gro. \$7.50
Leader Red End S. S.	12¢ gro. \$5.00
Quick Cut Emery	12¢ gro. \$10.00
Pure Corundum	12¢ gro. \$18.00
Crescent	12¢ gro. \$7.00
Emery Scythe Riffes	2 Coat. 18.80
Emery Scythe Riffes	3 Coat. \$11.00
Emery Scythe Riffes	4 Coat. \$13.20
Balance of 1907 list	33 1/2%
Lectro (Artificial)	12¢ gro. \$12.00
Lightning (Artificial)	12¢ gro. \$18.00

Stoppers, Bottle—

Victor Bottle Stoppers	12¢ gro. \$0.00
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Stops—Bench—

Millers Falls	15&10%
Morrill's	12¢ doz.
No. 1	\$10.00
No. 2	\$12.50
Seymour Smith & Son's	60%

Door—

Chapin-Stephens Co.	53&50&10%
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Plane—

Chapin-Stevens Co.	20%
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Straps—Box—

Acme Embossed, case lots.	20&10&10%
Cary's Universal, case lots.	20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points	.005¢
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All Steel Socket	.002¢
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Excelsior Stretchers and Tack Hammer Combined	.002¢
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Stuffers, Sausage—

Enterprise Mfg. Co., Stuffers and Lard Presses	25&25&7 1/2%
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National Specialty Co., list Jan. 1, 1902	30&5 1/2%
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F. & W. Co.	40&10&5 1/2%
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Sweepers, Carpet—

Goshen Sweeper Co.	Per doz.
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Gilt Edge	\$.02
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Superfine	26.00
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Majestic	24.00
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Select, Nickled	22.00
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National Sweeper Co.	
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National Queen, Nickled	22.00
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Martha Washington, Nickled	25.00
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Monarch, Japanned	20.00
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Perpetual Japanned	18.00
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Streator Metal Stamping Co.	
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Model E. Sanitaires	25.00
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Eureka	15.00
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Streator Majestic, Nickled	21.00
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Streator Conqueror, Japanned	22.00
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NOTE.—Leading Manufacturers give the following rebates from list prices: 50¢ per dozen on three-dozen lots; \$1 per dozen on five-dozen lots; \$2 per dozen on ten-dozen lots.	
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Tacks, Finishing Nails, &c.	
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American Carpet Tacks	90&25@-%
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American Cut Tacks	90&25@-%
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Swedes' Cut Tacks	L. 90&30@-%
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Swedes' Upholsterers'	90&30@-%
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Gimp Tacks	90&30@-%
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Lace Tacks	90&30@-%
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Trimmers' Tacks	90&30@-%
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Looking Glass Tacks	63@-%
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Bill Posters' and Railroad Tacks	90&40@-%
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Hungarian Nails	80@-%
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Finishing Nails	70@-%
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Trunk and Clout Nails	75@-%
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NOTE.—The above prices are for straight weights.	
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Miscellaneous—	
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Double Pointed Tacks,	90&6 tens@-%
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Se also Nails, Wire.	
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Tanks, Oil and Gasoline—	
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Wilson & Friend Co.	
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Gal. Gasoline	Oil
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30	\$2.75
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60	\$3.50
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110	\$5.00
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Tapes, Measuring—	
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American Asses' Skin	50@-%
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Patent Leather	25@30@5 1/2%
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Steel	33 1/2@5 1/2%
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Chesterman's Co.	25@25@5 1/2%
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Kaufell & Esser Co.	
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Favorite, Ass Skin	40@10@50%
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Favorite, Duck and Leather	35@30@5 1/2%
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Metallic and Steel, lower list	35@33 1/2@5 1/2%
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35@33 1/2@5 1/2%	
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Patent Pocket	40@40@5 1/2%
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Steel	33@33 1/2@5 1/2%
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Lufkins:	
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Asses' Skin	40@10@50%
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Metallic	30@30@5 1/2%
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Patent Bend, Leather	25@25@5 1/2%
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Pocket	40@

